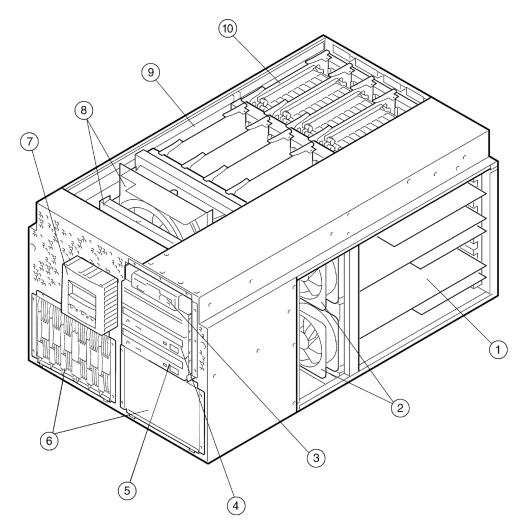
Overview



- 1. PCI Cards
- 2. Fans
- 3. Diskette drive
- 4. Removable media bays
- 5. CD-ROM drive

- 6. 6-Bay disk drive storage cages
- 7. Control Panel
- 8. Fans
- 9. CPUs
- 10. Memory

Overview

At A Glance

AlphaServer/AlphaStation ES40 Systems include:

- Alpha 21264 68/833-MHz CPU with 8-MB L2 Dual Data Rate Cache
- 6-10 64-bit PCI I/O expansion slots
- 512-MB, 1-GB, 2-GB, or 4-GB memory options (AlphaServers)
- 512-MB memory option (AlphaStations)
- 1.44-MB diskette drive
- 600-MB 48X IDE CD-ROM drive
- Two 9-pin serial ports
- One 25-pin parallel port
- RMC dedicated serial port, 6-pin MMJ connector
- Dual USB ports
- Keyboard and mouse port
- Knockouts for two 68-pin SCSI connections
- Auto-sensing power supply
- Integral remote system management console
- Customer documentation
- Tru64 UNIX or OpenVMS Factory Installed Software
- 90-day software warranty
- Protected by HP Services, including three-year hardware warranty, on-site with 5 x 9 next business day response



Standard Features

| Processor | Alpha 21264 68/833-MHz CPU | | | | | |
|--------------------|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|
| Cache Memory | 8-MB L2 Dual Date | a Rate Backup Cache (68/833-MHz CPU) | | | | |
| Upgradability | Supports additional | processors and upgrades of memory and hard drives | | | | |
| Memory | Minimum | 512 MB – AlphaServer ES40 Model 1 512 MB – AlphaStation ES40 1 GB – AlphaServer ES40 Model 2 | | | | |
| | Maximum | 16 GB (16 DIMM slots) Model 1; 32 GB (32 DIMM slots) Model 2 (see Step 3) | | | | |
| Network Controller | Choice of Ethernet | controllers | | | | |
| Expansion | PCI I/O slots | 6 slots Model 1; 10 slots Model 2 | | | | |
| Storage | Diskette Drive CD-ROM Hard Drives | 1.44-MB diskette drive in dedicated slot 600-MB 48X IDE CD-ROM Choice of 18.2-GB, 36.4-GB, 72.8-GB, or 146-GB drives | | | | |
| Interfaces | Parallel Serial USB Keyboard Mouse Remote systems management SCSI connections | 1 25-pin parallel port 2 9-pin serial ports Dual USB ports 1 port 1 port 1 dedicated remote systems management port Two 68-pin SCSI connections knockouts | | | | |
| Graphics | Optional | | | | | |
| Form Factor | Tower, Pedestal, Ro | Tower, Pedestal, Rackmount (M-Series Cabinet) | | | | |
| Power Supply | Auto-sensing power | supply, hot swappable, N+1 (see Step 4) | | | | |
| Manageability | Insight Manager | | | | | |



Standard Features

OS Support

AlphaServer ES40 Tru64 UNIX systems include pre-installed software, Base license, Unlimited User license, Server Extension license, Internet Express, and Secure Web Server

AlphaStation ES40 Tru64 UNIX systems include pre-installed software, 2-user Base license and Open3D traditional license

AlphaServer ES40 OpenVMS systems include pre-installed software, Base license with System Manager license and Enterprise Integration Server License Package for OpenVMS V3.1

AlphaStation ES40 OpenVMS systems include pre-installed software, Base license, Concurrent Use 1-user license, NAS 150 Client license, MMS RT license, and Open3D traditional license

Minimum OS support - Tru64 UNIX V4.0F, OpenVMS V7.2-2, Linux RedHat V6.2, Linux SuSE V6.3 or greater

Service and Support

Protected by HP Services including a three-year on-site hardware warranty with next business day response. Software warranty is a 90-day telephone advisory. Training, consulting, network integration, software support, comprehensive system maintenance and guaranteed uptime services are also available for customers requiring higher levels of service and support.



Systems

Step 1 - Select system

AlphaServer ES40 systems require the **mandatory** selection of the following items:

- Disk drive cage or StorageWorks shelf (Step 5)
- System disk drive (Step 5)
- System enclosures: Tower, Pedestal, or Rack Kit (Step 6)
- Ethernet adapter (Step 8)
- Storage adapter (Step 10)
- Software media and documentation for first system onsite

NOTES: ES40 Model 1 to Model 2 Upgrade Kit available - see Step 16.

Only 2-5-2 part numbers are factory integrated.

| ES40 | OS | CPU | PCI I/O Slots | Memory/Cache | Order Number |
|----------------------|------------|----------|---------------|--------------|--------------|
| Model 1 | Tru64 UNIX | 833 MHz | 6 | 512 MB/8 MB | DA-62CAA-CA |
| Model 1 | Tru64 UNIX | 833 MHz | 6 | 1 GB/8 MB | DA-62CAA-DA |
| Model 1 | Tru64 UNIX | 833 MHz | 6 | 2 GB/8 MB | DA-62CAA-EA |
| Model 2 | Tru64 UNIX | 833 MHz | 10 | 512 MB/8 MB | DA-64CAA-CA |
| Model 2 | Tru64 UNIX | 833 MHz | 10 | 1 GB/8 MB | DA-64CAA-DA |
| Model 2 | Tru64 UNIX | 833 MHz | 10 | 2 GB/8 MB | DA-64CAA-EA |
| Model 2 | Tru64 UNIX | 833 MHz | 10 | 4 GB/8 MB | DA-64CAA-FA |
| Model 1 | OpenVMS | 833 MHz | 6 | 512 MB/8 MB | DY-62CAA-CA |
| Model 1 | OpenVMS | 833 MHz | 6 | 1 GB/8 MB | DY-62CAA-DA |
| Model 1 | OpenVMS | 833 MHz | 6 | 2 GB/8 MB | DY-62CAA-EA |
| Model 2 | OpenVMS | 833 MHz | 10 | 512 MB/8 MB | DY-64CAA-CA |
| Model 2 | OpenVMS | 833 MHz | 10 | 1 GB/8 MB | DY-64CAA-DA |
| Model 2 | OpenVMS | 833 MHz | 10 | 2 GB/8 MB | DY-64CAA-EA |
| Model 2 | OpenVMS | 833 MHz | 10 | 4 GB/8 MB | DY-64CAA-FA |
| Station ES40 Systems | | <u> </u> | | | |
| Model 2 | Tru64 UNIX | 833 MHz | 10 | 512 MB/8 MB | DA-64CAA-CW |
| Model 2 | OpenVMS | 833 MHz | 10 | 512 MB/8 MB | DY-64CAA-CW |



KN610-BB

QuickSpecs

Systems

Step 2 - Additional CPU Modules - Optional

• One CPU included, three additional CPUs are supported

SMP upgrade, includes one 67/667-MHz CPU with 8-MB cache and Tru64 UNIX

SMP license

SMP upgrade, includes one 67/667-MHz CPU with 8-MB cache and OpenVMS KN610-BC

SMP license

SMP upgrade, includes one 68/833-MHz CPU with 8-MB cache and Tru64 UNIX KN610-CB

SMP license

SMP upgrade, includes one 68/833-MHz CPU with 8-MB cache and OpenVMS KN610-CC

SMP license

From: To:

EV67 667-MHz CPU EV68 833-MHz CPU

Upgrade console firmware to V5.9-24 as minimum revision

Upgrade system hardware with EV68 CPUs

Ensure all system firmware matches console version V5.9-24

EV6 500-MHz CPU EV68 833-MHz CPU

Upgrade console firmware to V5.9-24 as minimum revision

Upgrade system hardware with EV68 CPUs Re-install V5.9-24 console firmware

Ensure all system firmware matches console version V5.9-24

Step 3 - Memory - Optional

- Systems include one memory option
- Model 1 systems supports four memory options (total of 16 DIMMs)
- Model 2 systems support eight memory options (total of 32 DIMMs see Note below)
- Memory performance considerations: Interleaved operations reduce the average latency and increase the memory throughput over non-interleaved operations. With one memory option (4 DIMMs) installed, memory interleaving will not occur. With two identical memory options (8 DIMMs) installed, memory read-write operations are two-way interleaved. With four identical memory options (16 DIMMs) installed, memory read-write operations are four-way interleaved, maximizing memory throughput.



Systems

 512-MB memory option (4 x 128-MB DIMMs)
 MS610-CA

 1-GB memory option (4 x 256-MB DIMMs)
 MS610-DA

 2-GB memory option (4 x 512-MB DIMMs)
 MS610-EA

 4-GB memory option (4 x 1024-MB DIMMs)
 MS610-FA

NOTE: ES40 configurations that require maximum N+1 power (three power supplies) are restricted to a maximum of 24-GB of mixed memory (sixteen 1-GB DIMMs and sixteen 512-MB DIMMs). If N+1 maximum power is not required, 32-GB of memory is supported.

NOTE:

Linux configurations with large memory require the installation of a patch. The patch to support greater than 2 GB of memory per system is located at: http://www.kernel.org/pub/linux/kernel/people/andrea/patches/v2.2/2.2.17 (patch name: bigmem-2.2.18pre2-18.bz2)

The following minimum operating system versions require the patch:

- Linux RedHat V6.2
- Linux SuSE V6.3 (Kernel V2.2.17)

The following operating system minimum versions support greater than 2 GB of memory:

- Linux RedHat V7.0 (installs Kernel V2.2.17)
- Linux SuSE V7.0 (installs Kernel V2.2.16)

When installing Linux SuSE V7.0 on a system with more than 2 GB of memory, user will be prompted for a (ramdisk) floppy. To create a floppy:

- Mount the SuSE V7.0 installation CD-ROM #1 on the system.
- Mount a blank formatted floppy (if not formatted, execute the following command: fdformat/dev/fd0H1440).
- Change directory, to the "disks" directory on the install CD-ROM.
- Execute the following command to create the floppy contents: dd if=install of=/dev/fd0.

Use this floppy when prompted by the install procedure for a floppy.



Options

Step 4 - Additional Power Supplies - Required for third and fourth CPUs and/or second Disk Drive Cage

- One power supply supports two CPUs, up to 12 memory DIMMs, and one disk card cage; order second power supply if N+1 power is required.
- Two power supplies support third and fourth CPU, 13 to 32 memory DIMMs (up to 24-GB of memory), and/or two disk card cages; order third power supply if N+1 power is required for third and fourth CPUs, 24-GB of memory, and/or two disk card cages.
- Three power supplies support 32 GB of memory without N+1 power.
- Three power supplies support a maximum of 24 GB of memory with full N+1 power.
- Each additional power supply ordered with a tower system requires an additional country-specific power cord.
- Pedestal system and Rack kit include three internal power cords regardless of the number of power supplies ordered; Pedestal systems support 120 V and 240 V power cords.

ES40 720W power supply H7906-A9

Step 5 - Disk Drive Cage or StorageWorks Shelf - Mandatory

- Tower enclosure supports one system and two disk drive cages
- Pedestal enclosure supports one system and two disk drive cages, two Universal 42xx/43xx StorageWorks shelves or three BA36R StorageWorks shelves
- M-Series cabinets support five systems each with two disk drive cages and up to six StorageWorks shelves

| Disk Drive Cages | 6-bay disk drive cage with cable for use with 1-inch Universal drives – requires mandatory selection of UltraSCSI adapter and SCSI cable (Step 10) per disk drive cage | | | |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--|--|
| | 6-bay disk drive cage with embedded Ultra2 LVD adapter; supports internal SCSI 1-inch Universal drives or tapes only OpenVMS V7.2-2 requires OpenVMS Tima Kit located at: - http://ftp.support.compaq.com/patches/.new/openvms.shtml Tru64 UNIX V4.0F requires Patch Kit 2 (BL13): - DUV40FAS0002-19991116.tar NOTE: See AlphaServer ES40 Configuration Chart for Storage Adapters in Step 10. | BA610-6E | | |
| System Disk Drives | 18.2-GB Ultra320 SCSI 15,000 rpm 1-inch Universal disk drive | 3R-A3848-AA | | |
| (Supported in Disk Drive Cage | 36.4-GB Ultra320 SCSI 10,000 rpm 1-inch Universal disk drive | 3R-A3838-AA | | |
| and Universal StorageWorks Shelves) | 36.4-GB Ultra320 SCSI 15,000 rpm 1-inch Universal disk drive | 3R-A3849-AA | | |
| | 72.8-GB Ultra320 SCSI 10,000 rpm 1-inch Universal disk drive | 3R-A3839-AA | | |
| | 72.8-GB Ultra320 SCSI 15,000 rpm 1-inch Universal disk drive | 3R-A3851-AA | | |
| | 146-GB Ultra320 SCSI 10,000 rpm 1-inch Universal disk drive | 3R-A3841-AA | | |



Options

Step 5b - StorageWorks Model 4314R and Model 4354R Universal Drive Shelves

| | StorageWorks Model 4314R and 4354R Ultra2 SCSI (LVD) single-bus and split-bus Universal drive shelves; refer to StorageWorks Enclosure 4300 Family QuickSpecs when configuring shelves. When selecting a DS-SL13R-xx split-bus shelf, order two UltraSCSI adapters. Model 43xx shelves are compatible with Wide Ultra2 (LVD) adapters only. BN38C-05 cable is required per channel if the connection is not VHDCI/VHDCI. DS-SL13R shelves include one 12-foot VHDCI/VHDCI SCSI cable. Note that the depth of a DS-SL13R-xx shelf does not allow front and rear mounting. | |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| | StorageWorks Model 4314R Ultra3 SCSI (LVD) single-bus Universal drive rackmount shelf, includes one power supply, U.S. (190209-0011) | DS-SL13R-AA |
| | StorageWorks Model 4314R Ultra3 SCSI (LVD) single-bus Universal drive rackmount shelf, includes one power supply, Japan (190209-291) | DS-SL13R-AJ |
| | StorageWorks Model 4354R Ultra3 SCSI (LVD) split-bus Universal drive rackmount shelf, includes two redundant power supplies, U.S. (190211-0011) | DS-SL13R-BA |
| | StorageWorks Model 4354R Ultra3 SCSI (LVD) split-bus Universal drive rackmount shelf, includes two redundant power supplies, Japan (190211-291) | DS-SL13R-BJ |
| | To add additional power supply for single-bus Universal shelf, U.S. (338296-B21) | DS-SE2UP-BA |
| | To add additional power supply for single-bus Universal shelf, International (338296-B22) | DS-SE2UP-BI |
| StorageWorks Model | Model 4314T Ultra3 SCSI, single-bus tower enclosure, U.S. (190210-001) | DS-SL13T-AA |
| 4314T Standalone Enclosure for Universal | Model 4314T Ultra3 SCSI, single-bus tower enclosure, International (190210-B31) | DS-SL13T-AB |
| Drives | Model 4314T Ultra3 SCSI, single-bus tower enclosure, Japan (190210-291) | DS-SL13T-AJ |

Step 6 - System Enclosures - Mandatory selection of Tower, Pedestal, or Rack Kit

Step 6a - Tower Enclosure

- Tower enclosure supports one system
- Tower enclosure ordered in North America includes 120V power cord; country-specific power cord mandatory for all non-North American systems; additional power cord mandatory for each power supply ordered with a system installed in a tower enclosure

Tower Enclosure BA61M-MT

Step 6b - Pedestal Enclosure

- Pedestal enclosure supports one system, two Universal 43xx StorageWorks shelves or three UltraSCSI BA36R StorageWorks shelves
- Pedestal enclosures (BA61P-PA, 120V/BA61P-PB, 240V) support Universal shelves
- 120V pedestal enclosure includes two external 120V power cords; 240V pedestal enclosure requires two country-specific power cords
- Pedestal enclosure includes two factory-configured power strips that provide five available outlets; if the number of BA356-RC/RD power supplies
 requires a sixth outlet, this can be accommodated only if the system chassis is limited to two H7906-A9 power supplies

120V Pedestal Enclosure, includes two external power cords 240V Pedestal Enclosure, requires two country-specific power cords BA61P-PA

BA61P-PB



Options

Step 6c - Rack Kit for M-Series Cabinet

- Rack Kit required for each AlphaServer ES40 system installed in a new or existing M-Series Cabinet
- Rack Kit supports one system

Rack kit for AlphaServer ES40, includes dress bezel, slides, three internal power cords, all bracketry and hardware for mounting in M-Series cabinets

BA61R-RM

NOTE: Factory integration of an ES40 system drawer in a 9000 rackmount cabinet using rack kit, 3X-BA61R-RC, is not supported. Contact Custom Systems or Certified Integration Partner.

Step 7 - M-Series Cabinets

M-Series cabinet enclosures support up to four systems, up to six StorageWorks shelves, and/or two BA370 enclosures; M-Series Enclosures require selection of the following items:

- H9A10 or H9A15 cabinet, 120V or 240V
- Rack kit for each system
- H9A10 or H9A15 rear cabinet extender
- Cabinet front door based on cabinet height
- Factory integration
- Ballast kit if only one system is ordered for the H9A15 cabinet

NOTE: For configurations beyond those listed in the following charts, contact CustomSystems.

| | Cabinet Configuration Chart for AlphaServer ES40 (8U) with StorageWorks Shelves (4U) | | | | | | | | | |
|----------------|--------------------------------------------------------------------------------------|------------------|----------------------|---------|---------------|-----------------------------|-------|----------|--|--|
| Cabinet | Rack Kit | Cabinet Extender | Cabinet Height/Space | Systems | BA356 Shelves | es DS-SL13R 120V Shelves(2) | | 356/ | | |
| | | | | | | | DS-S | L13R(3) | | |
| | | | | | | | BA356 | DS-SL13R | | |
| H9A10-MC/MD(1) | BA61R-RM | H9C10-TE | 67-inches/34U | 1 | 6 | 8 | 6 | 4 | | |
| | | | | 2 | 6 | 5 | 6 | 1 | | |
| | | | | 3 | 2 | 2 | 4 | 0 | | |
| | | | | 4(1) | 0 | 0 | 0 | 0 | | |
| H9A15-MC/MD(4) | BA61R-RM | BA61R-RM | 79-inches/41U | 1 | 6 | 8 | 6 | 5 | | |
| , | | | | 2 | 6 | 5 | 6 | 2 | | |
| | | | | 3 | 6 | 2 | 6 | 0 | | |
| | | | | 4 | 2 | 0 | 2 | 0 | | |
| | | | | 5(5) | 0 | 0 | 0 | 0 | | |

NOTES:

- 1. Contact CustomSystems for cabinet configurations with four AlphaServer ES40 systems installed in H9C10-MC/MD cabinet.
- 2. Japan only 240V cabinet required when using Universal shelves
- 3. When using a combination of BA356 and DS-SL13R shelves in the same cabinet, do not remove the top fan (only remove fan when using DS-SL13R shelves exclusively)
- 4. Installation of one AlphaServer ES40 system in an H9A15 cabinet requires the mandatory selection of a ballast kit.
- 5. When adding the 5th system drawer, replace H7600-AA or -DB power controller with H7602-EA or -DB power controller. When replacing H7600 controllers, replace all associated power cords; order BN35S-4E power cords for H7602-EA and H7602-DB power controllers.

| M-Series Cabinets | Required selection of one cabinet Two H7600-xx power distribution units are standard in the M-Series cabinet For cabinet configurations that require a third power distribution unit (H7600-xx), contact | |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| | CustomSystems at 1-800-282-6672. 67-inch cabinet with 59.5-inch or 34U of usable vertical space, 120V dual-24A controller, each with 10 NEMA 5-15R outlets, input power plug NEMA L5-30P, Americas, Asia Pacific; includes rear door and top fan tray | H9A10-MC |
| | 67-inch cabinet with 59.5-inch or 34U of usable vertical space, 240V dual-16A controller, each with 12 IEC C13 outlets, input power plug IEC 309, 16A, Europe; includes rear door and top fan tray | H9A10-MD |
| | 79-inch cabinet with 71.7-inch or 41U of usable vertical space, 120V dual-24A controller, each with 10 NEMA 5-15R outlets, input power plug NEMA L5-30P, Americas, Asia Pacific; includes rear door and top fan tray | H9A15-MC |
| | 79-inch cabinet with 71.7-inch or 41U of usable vertical space, 240V dual-16A controller, each with 12 IEC C13 outlets, input power plug IEC 309, 16A, Europe; includes rear door and top fan tray | H9A15-MD |
| Rear Cabinet Extender | Required selection of one cabinet extender for each H9A10 or H9A15 cabinet | |
| | Rear cabinet extender, top gun blue, for H9A10-MC/MD cabinets | H9C10-TE |
| | Rear cabinet extender, top gun blue, for H9A15-MC/MD cabinets | H9C15-TE |
| Cabinet Front Door | Required selection of door based on cabinet height | |
| | Front door, top gun blue, for H9A10-MC/MD cabinet enclosure | H9C10-TF |
| | Front door, top gun blue, for H9A15-MC/MD cabinet enclosure | H9C15-TF |
| Factory Integration | Required Factory Integration of systems and storage devices assembled and configured in cabinet enclosure in predefined locations | YS-ASCAA-AA |
| | predefined rocumons | |
| Ballast Kit | Required only if one system is ordered for the H9A15 cabinet Ballast is added to a cabinet at particular locations for specific configurations to meet safety regulations for installation, operation, and service; see Cabinet Configuration Charts. | |
| | Two 35 to 40 lb steel plates | H9C10-MC |



Options

Step 8 - Networking Adapters/Controllers

Step 8a - Networking Adapters/Controllers - Mandatory

- Select mandatory Ethernet adapter
- Adapters require a minimum of Tru64 UNIX V4.0F or OpenVMS V7.2-2
- Each adapter uses one PCI slot

NOTE: Ethernet adapter is not required if 3X-DEPVZ-AA or KZPCM is selected as SCSI adapter for StorageWorks shelf.



| | | | aximum upporte | | |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------------------|-------|-------------|
| | | Tru64 UNIX | | Linux | |
| Ethernet 10/100/1000 | PCI (32-/64-bit, 33-/66-MHz) dual-port 10/100 Ethernet (UTP/RJ45s) NIC and Base Module. (One 3X-DE602-TA or 3X-DE602-FA optional add-on daughter card can be combined with this module.) Use BN25G, BN26M, BN24Q, or BN28Q twisted pair RJ45 cables. | 4 | 4 | - | 3X-DE602-BE |
| | PCI single-port 1000 Mbps (MMF with duplex-SC) Gigabit Ethernet; Tru64 UNIX V5.1B/TruCluster V5.1B supports up to eight nodes and requires: - T64V51BB22AS0002-20030415.tar Requires Early Release Patch to update driver to V1.0.21: T64V51BB22-C0019200-19212-E-20030710.tar http://ftp1.support.compaq.com/public/unix/v5.1b/t64v51bb1-0003000- 16672-e-20030130.README Tru64 UNIX V5.1A/TruCluster V5.1A supports up to eight nodes and requires Early Release Patch: - T64V51AB21-C0127901-19213-E-20030710.tar OpenVMS V7.301 support as a standalone network interface and as a cluster interconnect requires that users download and install the following two ECO Kits: DEC-AXPVMS-VMS731_PCSI_V0100-4.PCSI DEC-AXPVMS-VMS731_LAN_V0600-4.PCSI NOTE: Use BN34A, BN34B, or equivalent cables with SC connectors. | | 4 per bus | - | 3X-DEGXA-SA |
| | PCI single-port 10/100/1000 Mbps (Twisted-Pair Copper with RJ45) Gigabit Ethernet; Tru64 UNIX V5.1B/TruCluster V5.1B supports up to eight nodes and requires: - T64V51BB22AS0002-20030415.tar Requires Early Release Patch to update driver to V1.0.21: T64V51BB22-C0019200-19212-E-20030710.tar http://ftp1.support.compaq.com/public/unix/v5.1b/t64v51bb1-0003000- 16672-e-20030130.README Tru64 UNIX V5.1A/TruCluster V5.1A supports up to eight nodes and requires Early Release Patch: - T64V51AB21-C0127901-19213-E-20030710.tar OpenVMS V7.301 support as a standalone network interface and as a cluster interconnect requires that users download and install the following two ECO Kits: DEC-AXPVMS-VMS731_PCSI_V0100-4.PCSI DEC-AXPVMS-VMS731_LAN_V0600-4.PCSI NOTE: Use BN34A, BN34B, or equivalent cables with SC connectors | 4 per bus | 4 per bus | | 3X-DEGXA-TA |
| Multi-function Module 10/100 | PCI (32-bit, 33-MHz) multi-function (single-port 10/100 Ethernet UTP/RJ45, Ultra2 LVD SCSI, and 2D graphics) adapter NOTE: No support for multi-head graphics. OpenVMS V7.2-2 requires OpenVMS Tima Kit located at: - http://ftp.support.compaq.com/patches/.new/openvms.shtml Tru64 UNIX V5.1 requires Patch Kit 3: - T64V51AS0003-20010413.tar Tru64 UNIX V4.0F with NHD2 - TruCluster V5.1 support restricted to non-shared buses Use BN25G, BN26M, BN24Q, or BN28Q twisted pair RJ45 cables. | 1 | 1 Requires Slot O | - | 3X-DEPVZ-AA |
| | 3X-DEPVZ-AA specific-use 3-meter LVD2 SCSI cable | | | | BN37A-03 |



Options

Step 8b - Networking Adapters/Controllers - Optional

| | | | aximum | | |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|------------------|-------|-------------|
| | | Tru64 | Upporte Open | Linux | |
| | | UNIX | VMS | | |
| Ethernet 10/100 | PCI (32-/64-bit, 33-/66-MHz) single-port 1000 Mbps (MMF/SC) NIC; no on-board Boot-ROM support. Use BN34A or BN34B cables. | 4 | 4 | - | DEGPA-SA |
| | PCI (32-/64-bit, 33-/66-MHz) single-port 10/100/1000 (UTP/RJ45) Gigabit NIC, copper; no on-board Boot-ROM support. NOTE: Requires minimum version of Tru64 UNIX V5.0A, Patch kit 2: - T64V50AAS0002-20001004.tar Requires minimum version of OpenVMS V7.2-2; OpenVMS V7.3 requires Patch kit:- DEC-AXPVMS-VMS73_LAN-V0100-4.PCSI Use BN25G, BN26M, BN24Q, or BN28Q twisted pair RJ45 cables. | 4 | 4 | 4 | DEGPA-TA |
| | Dual-port 10/100 Ethernet (UTP/RJ45) add-on daughter card for use with the 3X-DE602-BB only. The combined 3X-DE602-BB and 3X-DE602-TA modules provide four 10/100 (UTP/RJ45s) ports in a single PCI slot option; allows for a maximum of 16 ports per system. NOTE: The 3X-DE602-TA cannot be used as standalone. OpenVMS V7.3 requires Tima Kit: - DEC-AXPVMS-VMS73_LAN-V0100—4.PCSI OpenVMS V7.2-2H1 requires OpenVMS Tima Kit located at: http://ftp.support.compaq.com/patches/.new/openvms.shtml Use BN25G, BN26M, BN24Q, or BN28Q twisted pair RJ45 cables. | 4 | 4 | - | 3X-DE602-TA |
| FDDI | Single-port 100Mbps (MMF/duplex-SC) add-on daughter card for use with 3X-DE602-BB. The combined 3X-DE602-BB 3X-DE602-FA provides two 10/100 (UTP/RJ45s) and one 100Mbps (MMF/SC) ports in a single PCI slot option. NOTE: The 3X-DE602-TA cannot be used standalone. Use BN34A or BN34B cables. | 4 per system 1 per adapter | 1 per adapter | - | 3X-DE602-FA |
| | PCI (32-bit, 33-MHz) to FDDI SAS (MMF/duplex-SC) NIC. Use BN34A, BN34B, or BN34D cables. | 4 | 4 | - | 3X-DEFPA-AC |
| | PCI (32-bit, 33-MHz) to FDDI DAS (MMF/duplex-SC) NIC. Use BN34A, BN34B, or BN34D cables. | 4 | 4 | - | 3X-DEFPA-DC |
| | PCI (32-bit, 33-MHz) to FDDI DAS (UTP/RJ45s) NIC. Use BN25G, BN26M, BN24Q, or BN28Q twisted pair RJ45 cables. | 4 | 4 | - | 3X-DEFPA-MC |
| | PCI (32-bit, 33-MHz) to FDDI SAS (UTP/RJ45) NIC. Use BN25G, BN26M, BN24Q, or BN28Q twisted pair RJ45 cables. | 4 | 4 | - | 3X-DEFPA-UC |
| | FDDI - specific cable - Multimode fiber optic (MMF) 62.5/125um duplex cable with SC-to-MIC connectors. -xx = available lengths: (01, 03, 10) for 1, 3, 10 meters | | | | BN34D-xx |
| ATM | PCI (32-bit, 33-MHz) to 155 Mbps ATM, copper NIC with RJ45 connector. Use BN25G-xx, or BN26M-xx cables. | 6 | 6 | - | 3X-DAPBA-UA |
| | PCI (32-bit, 33-MHz) to 155 Mbps ATM fiber NIC with SC connector. Use BN34B-xx cable. | 6 | 6 | - | 3X-DAPBA-FA |

Options

| Synchronous | PCI (32-bit, 33-MHz) to dual-port intelligent synchronous communications | 1 | 1 | | 3X-PBXDD-AA |
|------------------------|--------------------------------------------------------------------------|---|---|----------|---------------|
| Communications (SYNC) | NIC. Requires at least one (maximum two) 3X-BC34x synchronous cable | 4 | " | • | 2V-1 DVDD-4V4 |
| Communications (STNC) | | | | | |
| | listed below. | | - | \vdash | |
| | PCI (32-bit, 33-MHz) to quad-port intelligent synchronous communications | 4 | 4 | - | 3X-PBXDD-AB |
| | NIC. Requires at least one (max four) 3X-BCN34x synchronous cable listed | | | | |
| | below. | | | | |
| | Synchronous-Specific Cables | | | | |
| | EIA-530 single-port cable | | | | 3X-BC34G-06 |
| | V.24/EIA-232 single-port cable | | | | 3X-BC34L-06 |
| | V.11/x.21 single-port cable | | | | 3X-BC34S-06 |
| | V.35 single-port cable | | | | 3X-BC34T-06 |
| | • | | | | |
| Asynchronous | PCI (32-bit, 33-MHz) to quad-port Async Communications NIC with DB-25 | 4 | 4 | - | PBXDA-BA |
| Communications (ASYNC) | octopus cable | | | | |
| | PCI (32-bit, 33-MHz) to 8-port Async Communications NIC with DB-25 | 4 | 4 | - | PBXDA-BB |
| | octopus cables | | | | |
| | PCI (32-bit, 33-MHz) to 16-port Async Communications Controller and | 2 | 2 | - | PBXDA-AC |
| | tabletop16-port distribution box with RJ45 connectors | | | | |
| | PBXDA-AC Asynchronous Connector Adapters | | | | |
| | RJ45 to DB-25 converter cable | | | | CXI01-AC |
| | RJ45 to DEC MJ11 converter cable (8 pack) | | | | CXI01-AF |

Step 8c- Multi-use Cables

| | | | Maximum # Supported | | |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------------|-------|----------|
| | | Tru64 UNIX | | Linux | |
| Ethernet, FDDI, ATM | Multimode fiber optic (MMF) 62.5/125um duplex cable, with SC-to-ST connectors. -xx = available lengths: (2E, 4E, 01, 03, 10, 20, 30) for 2.4, 4.5, 1, 3, 10, 20, 30 meters | | | | BN34A-xx |
| | Multimode fiber optic (MMF) 62.5/125um duplex cable, with SC-to-SC connectors. -xx = available lengths: (2E, 4E, 01, 03, 10, 20, 30) for 2.4, 4.5, 1, 3, 10, 20,0 meters | | | | BN34B-xx |
| | Category 5e (4-Unshielded Twisted Pairs / UTP) straight-through cable with RJ45-to-RJ45 connectors for system to switch, repeater, or hub connectivity. -xx = available lengths: (0B, 0E, 01, 03, 04, 07) for 0.2, 0.5, 1, 3, 4, 7 meters | | | | BN25G-xx |
| | Category 5e (4-Twisted Pairs, Screened/ ScTP) straight-through cable with RJ45-to-RJ45 connectors for system to switch, repeater, or hub connectivity. -xx = available lengths: (0E, 01, 03, 04, 07) for 0.5, 1, 3, 4, 7 meters | | | | BN26M-xx |
| | Category 5e (4-Unshielded Twisted Pairs / UTP) Xover cable with RJ45-to-RJ45 connectors for system to switch, repeater, or hub connectivity. -xx = available lengths: (0E, 01, 03, 04, 07) for 0.5, 1, 3, 4, 7 meters | | | | BN24Q-xx |
| | Category 5e (4-Twisted Pairs, Screened / ScTP) Xover cable with RJ45-to-RJ45 connectors for system to switch, repeater, or hub connectivity. -xx = available lengths: (0E, 01, 03, 04, 07) for 0.5, 1, 3, 4, 7 meters | | | | BN28Q-xx |

Options

Step 9 - MEMORY CHANNEL - Optional

NOTE: When using MEMORY CHANNEL, refer to the TruCluster QuickSpecs for configuration guidelines and restrictions:

http://www.compag.com/products/quickspecs/Division/10657.html

The MEMORY CHANNEL controller, CCMAB-AA, must be revision C1 or later.

Tru64 UNIX Systems (V5.0A and later)

• Each system node in the cluster requires a TruCluster software license (QL-6BRAE-AA)

Tru64 UNIX Systems (V4.0F)

- Requires a minimum of Tru64 UNIX V4.0F with TruCluster V1.6 or later
- Each system node in the cluster requires a TruCluster Production Server (QB-3RLAE-AA) or TruCluster MEMORY CHANNEL software license (QB-4ZCAE-AA)
- TruCluster MEMORY CHANNEL license (QB-4ZCAG-AA), normally used for high performance technical
 computing applications, not required if systems include a TruCluster Production Server license (QB3RLAE-AA)

OpenVMS Systems

OpenVMS V7.2-2 or later and OpenVMS Cluster license (QL-MUZAE-AA) are required

Configuring Information

- Up to two PCI-to-System Area Network adapters (CCMAB-AA) are supported in a single system.
- Two-node clusters can be configured by ordering a CCMAB-AA for each node and one BN39B-04 or BN39B-10 cable; cable connects directly to CCMAB-AA in each node
- For a two-node cluster that will not be rebooted when adding additional members, order one CCMAB-AA adapter and one BN39B-04 or BN39B-10 cable for each node and one CCMHB-AA hub for the cluster
- Two-node clusters can also be configured by ordering two CCMAB-AA adapters for each node and two BN39B-04 or BN39B-10 cables; cables connect directly to CCMAB-AA in each node.
- For three or four node clusters, order one CCMAB-AA adapter and one BN39B-04 or BN39B-10 cable for
 each node, and one CCMHB-AA hub for the cluster If two CCMAB-AAs are configured in each system, a
 second CCMHB-AA is required.
- CCMHB-AA includes four CCMLB-AA line cards and supports up to four nodes; expansion up to eight system nodes can be achieved by adding up to four CCMLB-AA line cards.
- If nodes must be separated by a distance longer than standard copper cables allow the CCMFB option converts the output of the standard CCMAB controller or CCMLB line card to single-mode fiber optic cable. The fiber optic connection may be up to 2,000 meters long between two CCMAB controllers connected in virtual hub mode, or 3,000 meters between a CCMAB controller and a CCMHB hub. (The connection from the CCMHB hub to a second system may also be 3,000 meters.) The CCMFB option requires a second PCI slot in the system from which it draws power only. It is normally connected to the corresponding CCMAB controller with the short BN39B-01 cable. The CCMFB is also used in the CCMHB hub where it occupies a slot normally used by the CCMLB line card, limiting expansion to four radial fiber optic connections.
- CCMHB-BA hub expansion box provides additional slots for up to eight fiber optic connections. Two
 standard length single-mode fiber optic cables are available (BN34R-10 and BN34R-31); however, users
 normally provide this fiber optic connection. Fiber optic connectivity is completely transparent to the
 systems using it and has no performance impact.

| MEMORY CHANNEL Controller/System Area | PCI-to-System Area Network Controller, maximum two System Area Network Hub with four line cards; includes BN19P-2E power cord for Canada, Japan, | CCMAB-AA CCMHB-AA |
|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Network Hub | and U.S for other regions, order appropriate power cord from the following list: | CCIVII ID 7 V C |
| | Hub expansion box with no line cards | ССМНВ-ВА |
| | Expansion line card for CCMHB hub | CCMLB-AA |
| | 1-meter cable for CCMAB and CCMHB | BN39B-01 |
| | 4-meter cable for CCMAB and CCMHB | BN39B-04 |
| | 10-meter cable for CCMAB and CCMHB | BN39B-10 |
| | Copper-to-single mode fiber optic converter | CCMFB-AA |
| | Rackmount kit (3U) for CCMHB (MEMORY CHANNEL Hub II); required for mounting in H9A1x cabinets. | 3X-BA61R-MC |
| | Power cord for rackmount CCMHB hub | BN35S-02 |
| MEMORY CHANNEL | Australia, New Zealand (103541-011) | BN19H-2E |
| Power Cords | Central Europe | BN19C-2E |
| | Denmark (103541-481) | BN19K-2E |
| | Egypt, India (103541-AR1) | BN19S-2E |
| | Ireland, United Kingdom | BN19A-2E |
| | Israel | BN18L-2E |
| | Italy (103541-461) | BN19M-2E |
| | | 01/ 01/1/ 5 00 |
| | Japan, 2.5-meter, Dentori approved | 3X-BN46F-02 |



Options

Step 10 - Storage Adapters/Controllers

NOTE: Refer to the following chart when configuring adapters, shelves, and disks.

| Storage Adapters | Shelf | r Storage Adapters Disk Drives | Tru64 UNIX | OpenVMS | Linux |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------------------|-----------------------------|--------------------------|-----------------------|
| 3X-KZPCA-AA | BA610-6D | 3R-A0xxx-AA 1-inch Universal | V4.0F or higher | V7.2-2 or higher | RedHat V6.2 |
| OK KZI C/ (/ V) | DS-SSL14-Rx | 3R-A1xxx-AA 1-inch Universal | v4.01 of higher | V7.2 2 of Higher | SuSE V6.3 |
| | DS-SL13R-xx | 3R-A3xxx-AA 1-inch Universal | | | (Requires BA61 |
| 3X-KZPEA-DB | BA610-6D | 3R-A0xxx-AA 1-inch Universal | V5.1A only | V7.2-2 or higher | - (1.00401100 27.10 1 |
| 0/\frac{1}{2} \frac{1}{2} \fra | DS-SSL14-Rx | 3R-A1xxx-AA 1-inch Universal | V 5.17 Colliy | V7.2-2 of Higher | _ |
| | D3-33E14-IX | 3R-A3xxx-AA 1-inch Universal | | | |
| DS-KGPSA-EA | See external storage | 3R-A0xxx-AA 1-inch Universal | V5.1A | V7.3-1 | - |
| DJ-KOI JA-LA | options | 3R-A1xxx-AA 1-inch Universal | V3.1A | V7.5-1 | - |
| | Орнонз | 3R-A3xxx-AA 1-inch Universal | | | |
| DS-KGPSA-DA | See external storage | 3R-A0xxx-AA 1-inch Universal | V5.1 | V7.2-2 or higher | _ |
| D3-KGI 3A-DA | options | 3R-A1xxx-AA 1-inch Universal | ٧٥.١ | V7.2-2 Or Higher | - |
| | Орнонз | 3R-A3xxx-AA 1-inch Universal | | | |
| 3X-DEPVZ-AA | DS-SL13R-xx | 3R-A1xxx-AA 1-inch Universal | V4.0F with NHD2 or | V7.2-2 or higher | _ |
| 3A-DLI VZ-AA | D3-3L13R-XX | SK-ATXXX-AA T-IIICII OIIIVeISUI | higher | V7.2-2 of Higher | - |
| KZPCM-DA | BA36R-xx | DS-RZ1ED-VW | V4.0F or higher | V7.2-2 or higher | - |
| | (Installed base only) | DS-RZ1FC-VW | | | |
| | ["] | (Installed base only) | | | |
| 3X-KZPBA-CC | BA36R-xx | DS-RZ1ED-VW | V4.0F or higher | V7.2-2 or higher | RedHat V6.2 |
| | (Installed base only) | DS-RZ1FC-VW | Ĭ | | SuSE V6.3 |
| | ` | (Installed base only) | | | |
| DS-SWLA4-PD | BA36R-xx | DS-RZ1ED-VW | - | - | RedHat V6.2 |
| | (Installed base only) | DS-RZ1FC-VW | | | SuSE V6.3 |
| | ` | (Installed base only) | | | |
| NOTE | Ethernet adapter is not i | required if 3X-DEPVZ-AA or KZPCM-D/ | A is selected as SCSI adapt | er for StorageWorks s | helf. |
| xternal RAID Contr | | | | | |
| Controllers | Shelf | Disk Drives | Tru64 UNIX | OpenVMS | Linux |
| 3X-KZPDC-BE/DF | DS-SL13R-xx | 3R-A0xxx-AA 1-inch Universal | V5.1B/V5.1A | V7.3-1 | - |
| | | 3R-A1xxx-AA 1-inch Universal | EV68 only | | |
| | | 3R-A3xxx-AA 1-inch Universal | | | |
| DS-KZPCC-AC/CE | BA36R-xx* | DS-RZ1ED-VW | V4.0F or higher | Not supported | - |
| | (Installed base only) | DS-RZ1FC-VW | | | |
| | | (Installed base only) | | | |
| KZPAC-AA/CA/CB | BA36R-xx* | DS-RZ1DD-VW | V4.0F or higher | V7.2-2 or higher | - |
| | (Installed base only) | (Installed base only) | | | |
| DS-SWLA4-PD | BA36R-xx* | DS-RZ1ED-VW | - | - | RedHat V6.2 |
| | (Installed base only) | DS-RZ1FC-VW | | | SuSE V6.3 |
| | | (Installed base only) | | | |
| | |) module, DS-BA35X-FC; order DS-BA | 35X-FC as an independen | t option (will not be fo | actory installed). |
| ternal RAID Contr | | | 1 | Y | |
| Controllers | Shelf | Disk Drives | Tru64 UNIX | · | nVMS |
| 3X-KZPDC-BE/DF | BA610-6D | 3R-A0xxx-AA 1-inch Universal | V5.1B/V5.1A | V7 | .3-1 |
| | | 3R-A1xxx-AA 1-inch Universal | EV68 only | | |
| | | 3R-A3xxx-AA 1-inch Universal | | | |
| DS-KZPCC-AC/CE | BA610-6D (3) | 3R-A0xxx-AA 1-inch Universal | EV6 V4.0F | Not su | pported |
| (see NOTES) | | 3R-A1xxx-AA 1-inch Universal | EV67 V5.1 (2) | | |
| | | 3R-A3xxx-AA 1-inch Universal | EV68 (1) | | |

Options

NOTES:

- 1. DS-KZPCC-AC/CE RAID controllers can be used with Universal shelves and drives in ES40 Pedestal and Rackmount configurations. Configuration rules are restricted to specific CPU speeds and OS versions:
 - Tru64 UNIX V4.0F requires NHD3 and Patch Kit 4 (BL15) or later (for EV6, EV67, EV68 systems)
 - Tru64 UNIX V5.1 requires Patch Kit 3 (BL17) and Early Release Patch C462.02 (for EV68 and specific EV67 systems)
- 2. EV67 systems (54-30362-01) on V5.1 must be at Revision C01 or Revision D01
 - Patch Kit 3 (BL17) is located at: T64V5117-C0046202-11060-Manual-ER-20010615.tar
 - Patch C462.02 is located at: http://ftp1.support.compaq.com/public/unix/v5.1/
- 3. DS-KZPCC-AC/CE RAID controllers support standalone and cluster configurations
 - No support as boot device in cluster configurations
 - TruCluster V5.1 (restricted to non-shared buses only)

Only BA610-6D cages (with Nile Cards Rev –0B) shipped after 1 October 2001 support internal RAID. Contact Customer Services to replace Nile Cards shipped in BA610-6D disk card cages prior to 1 October 2001 where internal RAID is required.

| | | | aximum upporte | | |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------------|-------|-------------|
| | | Tru64 UNIX | | Linux | |
| SCSI | PCI 2-port PCI to Ultra3, 64-bit LVD SCSI adapter, uses one PCI slot; includes internal 68-pin and external 68-pin VHDCI connectors; requires 3X-BC56J-xx cable to connect adapter to Universal shelf; supports internal SDLT tape drives and external SDLT tape libraries; supports dual-bus (Model 4354R) and single-bus (Model 4314R) shelves; support restricted to EV68 833-MHz systems only and Tru64 UNIX V5.1A as a minimum. See Step 12 for graphics restrictions. The 3X-KZPEA-DB adapter supports shared SCSI under Tru64 UNIX. NOTE: Two-node maximum per shared bus; each shared bus requires 3X-BN55A-01 Y-cable and 3X-H32CT-AA external LVD terminator; Tru64 UNIX supports single and dual-bus disk shelves. Requires Tru64 UNIX V5.1A as minimum revision with Patch Kit 4: - T64V51AB21AS0004-20030206.tar Requires Tru64 UNIX V5.1B and Patch Kit: - T64V51BB03AS0001-20021229. OpenVMS V7.2-2 requires Tima kit: - DEC-AXPVMS-V722_FIBRE_SCSI-V0100-4.PCSI OpenVMS V7.3 requires Tima kit: - DEC-AXPVMS-V73_FIBRE_SCSI-V0100-4.PCSI OpenVMS supports dual-bus disk shelves only. | | 4 | | 3X-KZPEA-DB |
| | PCI 1-port Ultra2 (LVD) SCSI adapter, 32-bit, single-channel (uses one PCI slot); includes internal 68-pin and external 68-pin HD connectors; order BN38C-xx cable to connect adapter to Ultra3 shelf, or order VHDCI converter (BN38E-0B) for use with included cable; HSZxx RAID controllers not supported. OpenVMS V7.2-2 requires OpenVMS Tima Kit located at: http://ftp.support.compaq.com/patches/.new/openvms.shtml Tru64 UNIX V4.0F requires Patch Kit2 BL13: - DUV40FAS0002-19991116.tar | 6 | 6 | 6 | 3X-KZPCA-AA |
| | 68-pin HD male-to-VHDCI male UltraSCSI cable; -xx = 02, 03, 05, 10, 20 meters | | | | BN38C-xx |
| | PCI 1-port UltraSCSI differential adapter (uses one PCI slot); includes external 68-pin HD connector, requires BN38C-xx cable (2 to 220 meters) to connect adapter to differential UltraSCSI shelf or RAID controller | 5 | 5 | 5 | 3X-KZPBA-CC |
| | 68-pin HD male-to-VHDCI male UltraSCSI cable; -xx = 02, 03, 05, 10, 20 meters | | | | BN38C-xx |

| Fibre Channel | PCI-X to 2-Gb Fibre Channel adapter, 64-bit/66-MHz, single-channel (302784-B21) OpenVMS V7.3-1 requires TIMA Kit: VMS73_1_SCSI_FIBRE_V0300 OpenVMS V7.3-1 clusters require TIMA Kit: VMS73_1_CLUSTER_V0100 Tru64 UNIX V5.1A requires NHD 6 and T64V51AB21AS0004-20030206.tar Tru64 UNIX V5.1B requires Patch Kit 1: T64V51BB03AS0001-20021229.tar DS-KGPSA-EA does not support MSA 1000 | 6 per system | 6 per system | - | DS-KGPSA-EA |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------|---|-------------|
| | PCI to 2-Gbit Fibre Channel adapter, 64-bit, single-channel (uses one PCI slot) (261329-B21) NOTE: When used in standalone or TruCluster environment (with Fibre Channel Switches, Step 11), a maximum of six adapters is supported. Arbitrated loop is not supported. Tru64 UNIX V5.1 requires Patch Kit: - T64V51B18AS0004-20011114.tar OpenVMS V7.2-2 requires Tima Kit: - DEC-AXPVMS-VMS722_FIBRE_SCSI-V0100 OpenVMS V7.3 requires Tima Kit: - DEC-AXPVMS-VMS73 FIBRE-SCSI-V0200 | See Note | See Note | - | DS-KGPSA-DA |
| | PCI to 1-Gbit Fibre Channel adapter, 64-bit, single-channel (uses one PCI slot); direct attach supports a maximum of four adapters; TruCluster supports a maximum of two adapters | 4 | 4 | - | DS-KGPSA-CA |
| | See Fibre Channel cables – Step 11 PCI-to-Fibre Channel adapter, 64-bit single channel (uses one PCI slot); includes cable to HSG80 controller; requires Linux RedHat V6.2 and Linux SuSE V6.3; for details, refer to: http://www.compaq.com/products/storageworks/adapters/fchba-linux.html | - | - | 3 | DS-SWLA4-PD |
| A A In f | DCI (00 11 00 AHI) 11 11 12 13 14 15 15 15 15 15 15 15 | , | , | ĭ | 0V DEDVZ ++ |
| Multi-function Module | PCI (32-bit, 33-MHz) multi-function (single-port 10/100 Ethernet UTP/RJ45, Ultra2 LVD SCSI, and 2D graphics) adapter. See Step 8. | 1 | 1 | - | 3X-DEPVZ-AA |
| | PCI 2-port UltraSCSI single-ended adapter and 10/100 Mb Ethernet combo adapter (uses one PCI slot); includes internal 68-pin and 50-pin HD connectors and two external 68-pin VHDCI SCSI connectors, requires BN37A-xx cable to connect to single-ended UltraSCSI shelf | 4 | 4 | - | KZPCM-DA |



| RAID | PCI 3-port PCI to Ultra2, 64-bit, LVD backplane RAID controller with 64- | 8 | 8 | | DS-KZPCC-CE |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------|--------------|----------|----------|----------------|
| V (1) | MB cache (uses one PCI slot); requires connection to DS-SSL14-Rx | | | | DO NEI CC CL |
| | (maximum seven disks supported per channel) or to DS-SL13R-xx (maximum | | | | |
| | 14 disks with single channel); requires graphics adapter to run console | | | | |
| | utilities (SMOR). | | | | |
| | PCI 1-port PCI to Ultra2, 64-bit, LVD backplane RAID controller with 16- | 8 | 8 | - | DS-KZPCC-AC |
| | MB cache (uses one PCI slot); requires connection to DS-SSL14-Rx | | | | |
| | (maximum seven disks supported per channel) or to DS-SL13R-xx (maximum | | | | |
| | 14 disks with single channel); requires graphics adapter to run console | | | | |
| | utilities (SMOR). PCI 2-port PCI to Ultra3, 64-bit, 66 MHz, LVD backplane RAID controller | 6 per | 6 per | _ | 3X-KZPDC-BE |
| | | system | system | - | 3X-KZI DC-BI |
| | shelves or BA610-6D card cage. | 1 ' | 3 - PCI | | |
| | NOTE: Tru64 UNIX requires V5.1B and TruCluster V5.1B | bus 0 | bus 0 | | |
| | (non-shared buses only) with Initial Patch Kit: | | 4 - PCI | | |
| | T64V51BV1AS0001-20021229.tar | bus 1 | bus 1 | | |
| | Tru64 UNIX requires V5.1A with Initial Patch Kit: | D03 1 | 503 1 | | |
| | T64V51AV21AS0004-20030206.tar | | | | |
| | NOTE: Supports EV68 systems only; no host-based volume shadowing or | | | | |
| | shared bus support under OpenVMS | | | | |
| | PCI 4-port PCI to Ultra3, 64-bit, 66 MHz, LVD backplane RAID controller | 6 per | 6 per | - | 3X-KZPDC-DF |
| | with 256-MB cache (uses one PCI slot); requires connection to DS-SL13R-xx | system | system | | |
| | shelves or BA610-6D card cage. | 3 - PCI | 3 - PCI | | |
| | NOTE: Tru64 UNIX requires V5.1B and TruCluster V5.1B (non-shared | bus 0 | bus 0 | | |
| | buses only) with Initial Patch Kit:T64V51BV1AS0001-20021229.tar | 4 - PCI | 4 - PCI | | |
| | Tru64 UNIX requires V5.1A with Initial Patch Kit: | bus 1 | bus 1 | | |
| | T64V51AV21AS0004-20030206.tar | | | | |
| | NOTE: Supports EV68 systems only; no host-based volume shadowing or | | | | |
| | shared bus support under OpenVMS | | | | |
| | PCI 1-port UltraSCSI RAID controller with 4-MB cache memory (uses one | 4 | 4 | - | KZPAC-AA |
| | PCI slot), includes RAID Array 230/Plus Subsystem software and | | | | |
| | documentation kit; includes VHDCI female connector; tape drives not | | | | |
| | supported; only 9.1-GB disk drives supported, requires BN37A-xx cable (0.3 | | | | |
| | to 20 meters) to connect to single-ended UltraSCSI shelf | <u> </u> | | | |
| | PCI 3-port UltraSCSI RAID controller with 4-MB cache memory (uses one | 4 | 4 | - | KZPAC-CA |
| | PCI slot), includes RAID Array 230/Plus Subsystem Software and | | | | |
| | documentation kit; tape drives not supported; only 9.1-GB disk drives | | | | |
| | supported; SCSI cable required for each active port; requires BN37X-xx cable | | | | |
| | (0.3 to 20 meters) to connect to single-ended UltraSCSI shelf, and BN31K- | | | | |
| | OE for external third port connection | | ļ., | | 1/70.40.00 |
| | Same as KZPAC-CA with 8-MB cache memory | 4 | 4 | - | KZPAC-CE |
| | Cache battery backup for KZPAC controller | | - | \vdash | KZPSC-UE |
| | VHDCI male-to-VHDCI male UltraSCSI cable; | | | | BN37A-x |
| | -xx = 02, 2E [2.5], 03, 05, 10, 20, 25 meters | | | | |
| | NOTE: Manufacturing may substitute BN37A-02 cable for specific cabinet configurations. | | | | |
| | | <u> </u> | - | | DNIO1K OF |
| | SCSI cable/bulkhead assembly kit, supports one third-port connection from KZPAC-CA/CB, allows external connection of one third port | | | | BN31K-0E |
| | SCSI cable/bulkhead assembly kit, supports two third-port connections from | | 1 | | KZPAC-SE |
| | KZPAC-CA/CB, allows external connection of two third ports | | | | KZI/KC JE |
| RAID (Linux) | PCI 1-port Ultra SCSI RAID controller with 4-MB cache; supports disk drives | - | - | 4 | SN-KZPBC-AA |
| , , | only and external support only in BA356 StorageWorks shelves; requires RedHat V6.2, SuSE V6.3 | | | | |
| | PCI 3-port Ultra SCSI RAID controller with 32-MB cache; supports disk | - | <u> </u> | 4 | FR-PCTAR-IE |
| | drives only and external support only in BA356 StorageWorks shelves; | | | ' | 1 1 C 17 (K-1L |
| | requires RedHat V6.2, SuSE V6.3 | | | | |
| | PCI 3-port Ultra SCSI RAID controller with 64-MB cache; supports disk | - | | 4 | FR-PCTAR-IC |
| | drives only and external support only in BA356 StorageWorks shelves; | | | ' | 11.1 01/11. |
| | requires RedHat V6.2, SuSE V6.3 | | | | |
| | Padares (1981) 181 - 1912, 2001 - 1910 | | J. | | |



Options

| CI | PCI CI adapter for OpenVMS systems only; requires two PCI slots and CI cable for each adapter | - | 2 | - | CIPCA-BA |
|------|--------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|----------|
| | CI cable | | | | BNCIA-xx |
| | | | | | |
| DSSI | PCI DSSI controller for OpenVMS systems only; requires HSDxx controller to connect directly to StorageWorks shelf; requires BC29S-xx cable | - | 4 | - | KFPSA-AA |
| | 6-foot DSSI cable for connection to HSD10 installed in BA36R pedestal shelf | | | | BC29S-06 |
| | 9-foot DSSI cable for connection to HSD10 installed in BA36R cabinet shelf | | | | BC29S-09 |

| HVD to LVD Converters | HVD (High Voltage Differential) adapters and LVD (Low Voltage Differential) devices are normally inco different signaling voltage levels. This incompatibility does not allow direct communication between the technologies. The HVD to LVD converter allows connectivity between legacy HVD Host Bus Adapters and devices. The converter provides: Connectivity in direct attach or shared configurations of all currently available LVD devices, inclibraries, and shelves (4314 or 4354) when used with the KZPBA-CB and 3X-KZPBA-CC HVD or retirement of StorageWorks 1 disks and HVD shelves (BA36R), converters are desirable where up or upgrades to current operating system versions are not possible. Shared and direct attach configurations are interconnected much the same as those previously homogeneous HVD solutions, except that the HVD output is now passed through the converter the LVD device. Where required, Y cables (BN21W-0B), terminators (H879-AA), cables (BN38C or two HVD/LVD converters (one-port, two-port), Memory Channel adapters (CCMAB), one Me | cluding disks, tapes, dapters. With the grades to LVD HBAs, configured with before proceeding to -10, BN37A-20), one |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| | (BN39B-10), are used in conjunction with the LVD device of choice. | |
| | HVD to LVD one-port converter | 3X-DWZCV-BA |
| | HVD to LVD two-port converter | 3X-DWZCV-CA |

Step 11 - Storage Devices - Optional

Step 11a - Tape Devices

Tape Drives

- System includes embedded 1.44-MB diskette drive
- System includes embedded 5.25-inch half-height 600-MB 16X IDE CD-ROM drive
- Removable media slots provide support for up to two 5.25-inch half-height devices, or one 5.25-inch full-height (remove slot separator) removable media device; select up to two AIT or DAT devices or one DLT/SDLT tape device
- For maximum performance, tape libraries must be configured with Fast Wide Differential (FWD) controllers for tape backup
- For more information on tape drives, see
 http://www.compaq.com/products/StorageWorks/sitemap.html#tapedrives
 NOTE: This Web site is available in English only.



| AIT Tape Drives (Internal) | The following AIT tape drives are supported with 3X-KZPCA-AA adapter. AIT 5.25-inch half-height 35/70-GB 8-mm Wide UltraSCSI tape drive, top gun blue; requires SCSI | 3X-SZ35X-LB |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| | cable (3X-BN46M-01) AIT 5.25-inch half-height 35/70-GB 8-mm LVD UltraSCSI tape drive, carbon black; requires SCSI cable (3X-BN46M-01) | 3R-A2392-AA |
| | AIT 5.25-inch half-height 50/100-GB 8-mm Ultra2 (LVD) SCSI tape drive, top gun blue; requires SCSI cable (3X-BN46M-01) | 3X-SZ50X-LB |
| | AIT 5.25-inch half-height 50/100-GB 8-mm Ultra2 (LVD) SCSI tape drive; carbon black; requires SCSI cable (3X-BN46M-01) (157766-B22) | 3R-A3753-AA |
| | AIT 5.25-inch half-height 100/200-GB 8-mm Ultra3 SCSI tape drive; supported with 3X-KZPEA-DB, 3X-KZPCA-AA, or 3X-DEPVZ-AA LVD adapters, carbon black, requires SCSI cable (3X-BN46M-01) | 3R-A3623-AA |
| | 1-meter Ultra2 68-pin LVD cable with two connectors, multimode terminator and two wide-to-narrow adapters | 3X-BN46M-01 |
| AIT Tabletop Tape Drives | AIT 35/70-GB 8-mm LVD tabletop tape drive, carbon black, North America | 216885-001 |
| | Same as above, International | 216885-B31 |
| | Same as above, Japan | 216885-291 |
| | AIT 50/100-GB 8-mm SCSI tabletop tape drive with 120V North American power cord | 157767-002 |
| | Same as above, International | 157767-B32 |
| | Same as above, Japan | 157767-292 |
| | AIT 100/200-GB 8-mm Ultra3 SCSI tabletop tape drive; supported with 3X-KZPEA-DB, 3X-KZPCA-AA, or 3X-DEPVZ-AA LVD adapters, North America, carbon black | 249160-001 |
| | Same as above, International | 249160-B31 |
| AIT Hot-plug Tape Drives | The following AIT hot-plug tape drives use two Universal (BA610) slots: | |
| | AIT 35/70-GB hot-plug LVD Universal tape drive, uses two slots in BA610-6D or 43xxx shelves | 3R-A2396-AA |
| | AIT 50/100-GB hot-plug LVD Universal tape drive, uses two slots in BA610-6D or 43xxx shelves | 3R-A2779-AA |
| | AIT 100/200-GB hot-plug LVD Universal tape drive, uses two slots in BA610-6D or 43xxx shelves; supported with 3X-KZPEA-DB, 3X-KZPCA-AA, or 3X-DEPVZ-AA LVD adapters | 3R-A3621-AA |
| AIT Autoloaders | AIT 35-GB tabletop autoloader, 8 cartridge, U.S. | 292355-001 |
| | Same as above, International | 292355-B31 |
| | AIT 35-GB rackmount autoloader, 8 cartridge, U.S. | 280349-001 |
| | Same as above, International | 280349-B31 |
| | AIT Rail kit for autoloader | 284930-001 |
| AIT Tape Libraries | SSL2020 AIT tabletop library with one AIT 50-GB drive and 20 slots, LVD | 175195-B21 |
| • | SSL2020 AIT tabletop library with two AIT 50-GB drive and 20 slots, LVD | 175195-B22 |
| | SSL2020 AIT rackmount library with one AIT 50-GB drive and 20 slots, LVD (Universal shelves) | 175196-B21 |
| | SSL2020 AIT rackmount library with two AIT 50-GB drives and 20 slots, LVD (Universal shelves) | 175196-B22 |



| SDLT Tape Drives (Internal) | Select one SDLT tape device The following SDLT tape drives are supported with 3X-KZPCA-AA and 3X-KZPEA-DB adapters. SDLT 110/220-GB 3U/5U tape drive (Linux-supported option) SDLT 160/320-GB 3U/5U tape drive, carbon black | 192106-B25 257319-B21 |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| | North America Same as above, International Same as above, Japan | 166505-B31 166505-291 |
| DAT Autoloaders | DAT 20/40-GB auto loader external; requires VHDCI BN38A-0B adapter and BN23G-xx SCSI cable, | 166505-001 |
| | (Q1529A) DAT 72-GB hot-plug LVD tape drive (Q1529A) | 3R-A4547-AA |
| | DAT 36/72-GB hot-plug LVD tape drive, carbon black; uses two slots in BA610-6D or 43xxx shelves | 3R-A4547-AA |
| DAT Hot-plug Tape Drive | DAT 20/40-GB DDS4 hot-plug LVD Universal tape drive, uses two slots in BA610-6D or 43xxx shelves (Linux-supported option) DAT 40-GB hot-plug LVD tape drive (Q1546A) | 3R-A2780-AA 3R-A4745-AA |
| | Same as above, International (Q1528A) | 3R-A4546-AA |
| | Same as above, International | 3R-A4546-AA |
| | (Q1527A) DAT 72-GB LVD tabletop tape drive with North America power cord (Q1525A) | 3R-A4545-AA |
| | DAT 36/72-GB LVD tabletop SCSI tape drive with 120V North America power cord, carbon black | 3R-A4545-AA |
| | DAT 40-GB LVD tabletop tape drive with North America power cord (Q1554A) Same as above, International (Q1555A) | 3R-A4753-AA 3R-A4754-AA |
| | Same as above, Japan | 157770-292 |
| | Same as above, International | 157770-B32 |
| DAT Tabletop Tape Drives | DAT 20/40-GB 4-mm Wide Ultra2 (LVD) tabletop SCSI tape drive with 120V North American power cord, carbon black | 157770-002 |
| | DAT 12/24-GB 4-mm narrow SCSI tape drive in StorageWorks carrier | DS-TLZ10-VA |
| | 1-meter Ultra2 68-pin LVD cable with two connectors, multimode terminator and two wide-to-narrow adapters | 3X-BN46M-01 |
| | DAT 72-GB LVD internal tape drive (Q1525A) | 3R-A4544-AA |
| | DAT 40-GB LVD internal tape drive (Q1553A) | 3R-A4752-AA |
| | DAT 20/40-GB 4-mm 5.25-inch half-height Ultra2 (LVD) SCSI tape drive, carbon black; requires SCSI cable (3X-BN46M-01) (157769-B22) | 3R-A3752-AA |
| | DAT 20/40-GB 4-mm 5.25-inch half-height Ultra2 (LVD) SCSI tape drive, top gun blue; requires SCSI cable (3X-BN46M-01) | 3X-SD20X-LB |
| | DAT 12/24-GB 4-mm 5.25-inch half-height SCSI tape drive, top gun blue; requires SCSI cable (3X-BN46M-01) (Linux-supported option) | TLZ10-LB |
| DAT Tape Drives (Internal) | Select up to two DAT devices The following DAT tape drives are supported with 3X-KZPCA-AA, and 3X-DEPVZ-AA adapters. TLZ10 tape drives support 3X-KZPEA-DB adapters on Tru64 UNIX and OpenVMS (4 per bus). | |



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| Options | | |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DLT/SDLT Tape Libraries | Rackmount kit for H9Axx M-Series cabinets – required for mounting MSL5000 series in M-Series cabinets MSL5026DLX, DLT tabletop library with one 40/80-GB DLT tape drive, LVD MSL5026DLX, DLT tabletop library with two 40/80-GB DLT tape drives, LVD MSL5026DLX or MSL5026SL, DLT/SDLT rackmount library, 0 drives – requires rackmount kit (254795-001) MSL5026DLX, DLT rackmount library with one 40/80-GB DLT tape drive, LVD – requires rackmount kit (254795-001) MSL5026DLX, DLT rackmount library with two 40/80-GB DLT tape drives, LVD – requires rackmount kit (254795-001) | 254795-001 231821-B21 231821-B22 231979-B21 231891-B21 231891-B22 |
| | MSL5026S2, SDLT2 tabletop library with one 160/320-GB SDLT tape drive, LVD MSL5026S2, SDLT2 tabletop library with two 160/320-GB SDLT tape drives, LVD MSL5026S2 SDLT rackmount library, 0 drives, LVD – requires rackmount kit (254795-001) MSL5026S2, SDLT2 rackmount library with one 160/320-GB SDLT tape drive, LVD MSL5026S2, SDLT2 rackmount library with two 160/320-GB SDLT tape drive, LVD MSL5026S2, SDLT2 rackmount library with one 160/320-GB SDLT tape drive with Fibre Channel, LVD MSL5026S2, SDLT2 rackmount library with two 160/320-GB SDLT tape drive with Fibre Channel, LVD | 293473-B21 293473-B22 293472-B21 293472-B22 293472-B23 293472-B24 293472-B25 |
| | MSL5052SL SDLT tabletop library with two 110/220-GB drives, LVD MSL5052SL SDLT rackmount library, 0 drives, LVD – requires rackmount kit (254795-001) MSL5052SL SDLT rackmount library with two 110/220-GB drives, LVD – requires rackmount kit (254795-001) MSL5052SL SDLT 110/220-GB drive field upgrade, LVD | 249490-B21 255102-B21 249491-B21 231823-B22 |
| | MSL5052S2, SDLT2 tabletop library with two 160/320-GB SDLT tape drives, LVD, graphite MSL5052S2, SDLT2 rackmount library with two 160/320-GB SDLT tape drive, LVD MSL5052S2, SDLT2 rackmount library with two 160/320-GB SDLT tape drive with Fibre Channel, LVD | 293476-B21 293474-B21 293474-B24 |
| | MSL6000 with LTO Gen2 Tape Libraries MSL6000 LTO Gen2 add-on drive MSL6030 with 0 drives, LTO, LVDS, rackmount MSL6030 with one drive, LTO2, LVDS, rackmount MSL6030 with two drives, LTO2, LVDS, rackmount MSL6030 with one drive, LTO2, Fibre, rackmount MSL6030 with two drives, LTO2, Fibre, rackmount MSL6030 with one drive, LTO2, Fibre, rackmount MSL6030 with one drive, LTO2, LVDS, tabletop MSL6030 with two drives, LTO2, LVDS, tabletop MSL6060 with two drives, LTO2, LVDS, rackmount MSL6060 with two drives, LTO2, Fibre, rackmount MSL6060 with two drives, LTO2, Fibre, rackmount MSL6060 with two drives, LTO2, Fibre, rackmount | 330729-B21 330731-B21 330731-B22 330731-B23 330731-B24 330731-B25 330788-B21 330788-B22 331196-B23 331196-B21 331196-B21 331196-B22 |
| | ESL9198SL SDLT tape library with four 110/220-GB SDLT tape drives, 198 slots ESL9198SL SDLT tape library with eight 110/220-GB SDLT tape drives, 198 slots ESL9322S2 SDLT2 tape library, two 160/320GB SDLT tape drives, 222 slots ESL9322S2 SDLT2 tape library, eight 160/320GB SDLT tape drives, 222 slots ESL9322S2 SDLT2 tape library, two 160/320GB SDLT tape drives, 322 slots ESL9322S2 SDLT2 tape library, eight 160/320GB SDLT tape drives, 322 slots ESL9322S2 SDLT2 tape library with six 110/220-GB SDLT tape drives, LVD ESL9326SL SDLT tape library with eight 110/220-GB SDLT tape drives, LVD ESL9326SL SDLT tape library with 16 110/220-GB SDLT tape drives, LVD | 234618-B21 234618-B22 293409-B22 293409-B28 293410-B22 293410-B28 234615-B21 234615-B22 234615-B22 |



ESL9595S2 SDLT2 tape library, two 160/320-GB SDLT tape drives, 400 slots

ESL9595S2 SDLT2 tape library, 16 160/320-GB SDLT tape drives, 400 slots

ESL9595S2 SDLT2 tape library, two 160/320-GB SDLT tape drives, 500 slots

293411-B22

293411-B28

293412-B22

| | SDLT 110/220-GB, 3U rackmount kit, carbon black SDLT 110/220-GB, dual-drive, 3U rackmount kit, carbon black | 274331-B21 274334-B21 |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| | | |
| | DLT 40/80-GB, dual-drive, 3U rackmount kit, carbon black | 274335-B21 |
| | DLT 40/80-GB, 3U rackmount kit, carbon black | 274332-B21 |
| | AIT 50-GB 3U rackmount kit, carbon black | 274333-B21 |
| | Preconfigured Configurations | |
| | SDLT 160/320-GB tape drive, carbon black | 257319-B21 |
| | SDLT 110/220-GB tape drive | 192106-B25 |
| | DLT8000 40/80-GB tape drive | 146196-B22 |
| | DAT 20/40-GB 3U tape drive, carbon black (157769-B22) | 3R-A3752-AA |
| | AIT 50/100-GB 3U tape drive, carbon black (157766-B22) | 3R-A3753-AA |
| | AIT 35/70-GB 3U tape drive, carbon black | 216884-B21 |
| | devices, or up to two full-height devices; select up to four AIT or DAT devices or two DLT/SDLT devices with 3U Rackmount Tape Enclosure (274338-B21) or choose one of the preconfigured configurations listed below. | 01/00/00/ |
| | NOTE: The 3U Rackmount Tape Enclosure supports up to four internal half-height removable | |
| Enclosure | 3U LVD Rackmount Tape Drive Enclosure for use in H9Axx M-Series Cabinets, carbon black, 0 drives Rackmount Kit for H9Axx M-Series Cabinets, carbon black – required for mounting 3U Rackmount Tape Drive Enclosure in M-Series cabinet | 274338-B21 3R-A3804-AA |
| 3U Rackmount Tape [| Orive NOTE: The following options are supported with 3X-KZPCA-AA or 3X-KZPEA-DB LVD adapters. | |
| | ESL9595 400 to 595 slot upgrade kit | 330842-B23 |
| | ESL9595 500 to 595 slot upgrade kit | 330842-B22 |
| | ESL9595 400 to 500 slot upgrade kit | 330842-B21 |
| | ESL9000 5-MB memory module | 330841-B21 |
| | ESL9322 222 to 322 slot upgrade kit | 330840-B21 |
| | ESL9000 SDLT 110 drive upgrade kit | 330837-B21 |
| | ESL9000 Ultrium 460 drive upgrade kit | 330834-B21 |
| | ESL9595 library with 0 drives | 330833-B21 |
| | ESL9322 library with 0 drives | 330832-B21 |
| | ESL9000 with LTO Gen2 Tape Libraries | |
| | ESL9595SL SDLT tape library, 16 drives, 595 slots | 281628-B28 |
| | ESL9595SL SDLT tape library, 2 drives, 595 slots | 281628-B22 |
| | ESL9595SL SDLT tape library, 0 drives, 595 slots | 281628-B21 |
| | ESL9595SL SDLT tape library, 16 drives, 500 slots | 281627-B28 |
| | ESL9595SL SDLT tape library, 2 drives, 500 slots | 281627-B22 |
| | ESL9595SL SDLT tape library, 0 drives, 500 slots | 281627-B21 |
| | ESL9595SL SDLT tape library, 16 drives, 400 slots | 274672-B28 |
| | ESL9595SL SDLT tape library, 2 drives, 400 slots | 274672-B22 |
| | ESL9595SL SDLT tape library, 0 drives, 400 slots | 274672-B21 |
| | ESL9595S2 SDLT2 tape library, 16 160/320-GB SDLT tape drives, 595 slots | 293413-B28 |
| | ESL9595S2 SDLT2 tape library, two 160/320-GB SDLT tape drives, 595 slots | 293413-B22 |
| | ESL9595S2 SDLT2 tape library, 16 160/320-GB SDLT tape drives, 500 slots | 293412-B28 |



Options

| 5U Rackmount Tape Drive Enclosure | 5U LVD Rackmount Tape Drive Enclosure for use in H9Axx M-Series Cabinets, 0 drives, carbon black Rackmount Kit for H9Axx M-Series Cabinets, carbon black - required for mounting 5U Rackmount Tape Drive Enclosure in M-Series Cabinet NOTE: The 5U Rackmount Tape Enclosure supports four full-height removable devices; select up to four DLT or SDLT devices with 5U Rackmount Tape Enclosure (274339-B21) or choose one of the preconfigured configurations listed below. | 274339-B21 254795-001 |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| | DLT8000 40/80-GB tape drive | 146196-B22 |
| | SDLT 110/220-GB tape drive | 192106-B25 |
| | SDLT 160/320-GB tape drive, carbon black | 257319-B21 |
| | Preconfigured configurations | |
| | SDLT 110/220-GB Tape Array III, 5U rackmount kit, carbon black | 274336-B21 |
| | DLT 40/80-GB Tape Array III, 5U rackmount kit, carbon black | 274337-B21 |
| | DLT Tape Array III Model 0 enclosure, U.S. | 168047-001 |
| | Same as above, International | 168047-B31 |
| | Same as above, Japan | 168047-291 |

Step 11b - Network Storage Routers

Network Storage Routers

NOTE:

- e2400 and e1200 support LVD tape drives and tape libraries
- e2400 supports ESL family tape drives and tape libraries
- e1200 supports MSL family tape drives and tape libraries

| , , , , , , , , , , , , , , , , , , , , | BR-A3741-AA |
|-----------------------------------------------------------------------------------------------------------------------------------------|-------------|
| (262654-B21) NSR M2402 Two Fibre Channel x 4 LVD FC to SCSI Data Router, Tru64 UNIX and OpenVMS 31 | R-A3740-AA |
| (262653-B21) | 1K-A3/4U-AA |
| NSR e1200-160 One Fibre Channel x 2 LVD FC to SCSI Data Router, Tru64 UNIX and OpenVMS, graphite | 330728-B21 |
| NSR e2400 Two Fibre Channel x 4 LVD FC to SCSI Data Router with card cage, Tru64 UNIX and OpenVMS, carbon black (262665-B21) | BR-A3935-AA |
| NSR e2400 Two Fibre Channel x 4 LVD FC to SCSI Data Router without card cage, Tru64 UNIX and OpenVMS, carbon black (262664-B21) | 3R-A3745-AA |
| NSR N1200 One Fibre Channel x 2 LVD FC to SCSI Data Router, Tru64 UNIX and OpenVMS supports tape drives and tape libraries (280823-B21) | R-A3747-AA |

Step 11c - External Storage Solutions/Controllers

Enterprise Virtual Array 5000

ES40 servers support HP Enterprise Virtual Array 5000 (EVA5000) StorageWorks products running Tru64 UNIX and OpenVMS.

The EVA5000 is available in pre-defined configurations with controllers and/or expansion configurations without controllers. The EVA5000 also offers a pre-defined configuration that is optimized for High Performance Technical Computing (HPTC) environments. For ordering information and configuration rules, refer to the EVA5000 QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11006_div/11006_div.html

Enterprise Virtual Array 3000

ES40 servers support HP Enterprise Virtual Array 3000 (EVA3000) StorageWorks products running Tru64 UNIX and OpenVMS. Available in one of four integrated "independent bundle" configurations, the EVA3000 includes one pair of HSV100 controllers, two Fibre Channel drive enclosures and 8 to 16 Fibre Channel disk drives (bundle dependent). The EVA3000 is a full 2-Gb end-to-end Fibre Channel Array solution, which operates in 1-Gb, 2-Gb, or mixed 1-Gb/2-Gb SAN fabrics. For ordering information and configuration rules, refer to the EVA3000 QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11619_div/11619_div.html



3R-A4328-AA

QuickSpecs

Options

Modular SAN Array (msa 1000)

StorageWorks Modular SAN Array is supported on Tru64 UNIX and two-node clusters (maximum); it is supported with DS-KGPSA-CA, DS-KGPSA-DA, and DS-KGPSA-EA adapters; requires connection via

a switch - no direct connect; no support for FC arbitrated loop

Tru64 UNIX V5.1A requires Patch Kit 4:T64V51AB21AS0004-20030206.tar Tru64 UNIX V5.1B requires Patch Kit 1:T64V51BB03AS0001-20021229.tar

OpenVMS V7.3-1 requires TIMA Kit: VMS731_MSA1000-V0100 OpenVMS V7.3 requires TIMA Kit:

VMS73_FIBRE_SCSI-V0500

OpenVMS V7.2-2 requires TIMA Kit: VMS722 FIBRE SCSI-V0400

HP recommends OpenVMS customers run the default msa1000 cache settings at 50% read cache and 50% write cache; if a change to the default cache is required, msa1000 cache must be set to 50%

write cache or higher (lower than 50% write cache is not supported)

NOTE: DS-KGPSA-EA is not supported with OpenVMS

StorageWorks Disk Array Family

NOTE: The StorageWorks Disk Array Family, specifically the XP128 and XP1024,

are supported on AlphaServer ES40 systems. For product and ordering information, refer to the following Web pages:

 $\frac{http://www.hp.com/products1/storage/products/disk_arrays/highend/xp1024/index.html}{http://www.hp.com/products1/storage/products/disk_arrays/highend/xp128/index.html}$

The following part numbers have been assigned for reference purposes only:

3R-A4417-AA A7876A XP128 Disk Array Control Frame
3R-A4418-AA A7906A XP1024 Disk Array Control Frame

Step 11d – Fibre Channel Options

The following hubs, data routers, switches, and cables are used in Fibre Channel configurations using the DS-KGPSA-xx adapter.

| Fibre Channel Disk Drive | s 36-GB 10K rpm dual-port 2-Gb/sec FC-AL 1-inch (25.4 mm) drive (238590-B21) 72-GB 10K rpm dual-port 2-Gb/sec FC-AL 1-inch (25.4 mm) drive (238921-B21) 146-GB 10K rpm dual-port 2-Gb/sec FC-AL 1-inch (25.4 mm) drive (293556-B21) 36-GB 15K rpm dual-port 2-Gb/sec FC-AL 1-inch (25.4 mm) drive (236205-B21) 72-GB 15K rpm dual-port 2-Gb/sec FC-AL 1-inch (2.54 cm) drive (293568-B21) 72-GB 15K rpm dual-port 2-Gb/sec FC-AL 1-inch (25.4 mm) drive (293568-B21) | 3R-A3239-AA 3R-A3260-AA 3R-A3975-AA 3R-A3210-AA 3R-A3971-AA |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| Fibre Channel Hubs | Fibre Channel 7-port Storage Hub, International (Tru64 UNIX only) (234453-B31) Fibre Channel 7-port Storage Hub, Japan (Tru64 UNIX only) (234453-291) | DS-SWXHB-17 DS-SWXHB-J7 |
| Fibre Channel Data Routers | 1 Fibre Channel x 2 HVD data router (163082-B21) 1 Fibre Channel x 2 LVD data router (163083-B21) 2 x 4 LVD Fiber Channel to SCSI Network Storage Router (262653-B21) 2 x 4 HVD Fiber Channel to SCSI Network Storage Router (262654-B21) | 3R-A2673-AA 3R-A2774-AA 3R-A3740-AA 3R-A3741-AA |
| Fibre Channel Switches | Fibre Channel 2-Gb 8-port SAN switch (Base) (322120-B21) Fibre Channel 2-Gb 8-port SAN switch (Power pack) (322121-B21) Fibre Channel 2-Gb 16-port SAN switch (Base); requires Tru64 UNIX V5.1A Patch Kit: T64V51AB01AS0001-20020116.tar (322118-B21) | DS-DSGGD-BC DS-DSGGD-CC DS-DSGGD-CA |



Fibre Channel 2-Gb 16-port SAN switch (Power pack) (322119-B21)

Fibre Channel 2-Gb 32-port SAN switch (Power pack) (333764-B21)

Fibre Channel 2-Gb 64-port Core Switch (Power pack) (332178-B21)

Fibre Channel 2-Gb 32-port SAN switch (Base) (240603-B21)

Fibre Channel 2-Gb 64-port Core Switch (Base) (332177-B21)

DS-DSGGD-CB

DS-DSGGD-AB

DS-DSGGD-DB

DS-DSGGE-BA

DS-DSGGE-CA

| McData 64-port Fibre | SAN Director 64 (1 Gb) 32 ports, base model | DS-DMGGD-AA |
|----------------------|--------------------------------------------------------------------------------------------------|-------------|
| Channel SAN Director | SAN Director (2 Gb) 64 ports (286809-B21) | DS-DMGGD-BA |
| Class Switches | SAN Director 64 (2 Gb) 140 ports | DS-DMGGD-CA |
| | SAN Edge Switch 2 Gb, 32 ports (286810-B21) | DS-DMGGE-BC |
| | SAN Edge Switch 2 Gb, 16 ports (286811-B21) | DS-DMGGE-BB |
| | SAN Edge Switch 2 Gb, 24 ports | DS-DMGGE-BD |
| | NOTE: Connection for, or between, 1-Gb and/or 2-Gb SAN switches requires different cables. Refer | |
| | to the Switches, Hubs, and Interconnects QuickSpecs at: | |
| | http://www.compaq.com/products/quickspecs/North_America/10490.html | |
| Fibre Channel Cables | NOTE: The following LC-SC connector cables support connectivity between 1-Gb and 2-Gb devices. | |
| | 2-meter LC-SC multi-mode Fibre Channel cable (221691-B21) | 3R-A2976-AA |
| | 5-meter LC-SC multi-mode Fibre Channel cable (221691-B22) | 3R-A2977-AA |
| | 15-meter LC-SC multi-mode Fibre Channel cable (221691-B23) | 3R-A2978-AA |
| | 30-meter LC-SC multi-mode Fibre Channel cable (221691-B26) | 3R-A3458-AA |
| | 50-meter LC-SC multi-mode Fibre Channel cable (221691-B27) | 3R-A3459-AA |
| | NOTE: The following LC-LC connector cables support connectivity between 2-Gb and 2-Gb devices. | |
| | 2-meter LC-LC multi-mode Fibre Channel cable (221692-B21) | 3R-A2979-AA |



Options

Step 12 - Graphics Adapters - Optional

- RAID Configuration Utility is accessible via console port; optional graphics capability is available
- Select graphics adapter, monitor, and country-specific keyboard for Tru64 UNIX and OpenVMS systems if required

| | | Maxim | um # Su | pported | |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------------------|---------|-------------|
| | | Tru64 UNIX | Open VMS | Linux | |
| 2D Graphics | PCI (32-bit, 33-MHz) multi-function (single-port 10/100 Ethernet UTP/RJ45, Ultra2 LVD SCSI, and 2D graphics) adapter NOTE: No support for multi-head graphics. OpenVMS V7.2-2 requires OpenVMS Tima Kit located at: - http://ftp.support.compaq.com/patches/.new/openvms.shtml Tru64 UNIX V5.1 requires Patch Kit 3: - T64V51AS0003-20010413.tar Tru64 UNIX V4.0F with NHD2 - TruCluster V5.1 support restricted to non-shared buses Use BN25G, BN26M, BN24Q, or BN28Q twisted pair RJ45 cables. | 1 | 1 Requires Slot 0 | - | 3X-DEPVZ-AA |
| 2D/3D Graphics | RADEON 7500 PCI 2D/3D graphics accelerator Tru64 UNIX: Requires V5.1B with Patch Kit 1: T64V51BB03AS0001-20021229.TAR OpenVMS: Requires V7.3-1 with TIMA Kit: DEC-AXPVMS-VMS731_GRAPHICS-V0300-4.PCSI NOTE: For multi-head support, refer to Read Me First document/Release Notes. Do not mix with other graphics cards; 3D operation only functions with one card, restricted to non-shared SCSI buses. | 1 | 4 | - | 3X-PBXGG-AA |
| | PowerStorm 300 3D multi-head graphics accelerator with 15-MB frame buffer memory and 16-MB texture memory NOTE: Graphics controllers must be the same type (PowerStorm); no mixing. NOTE: If using SN-PBXGD-AD graphics adapter on the same PCI bus with the 3X-KZPEA-DB adapter, the SN-PBXGD-AD must be at minimum revision C06. | 8 | 4 | - | SN-PBXGD-AD |
| | PowerStorm 350 3D multi-head graphics accelerator with 30-MB frame buffer memory and 32-MB texture memory NOTE: If using SN-PBXGD-AE graphics adapter on the same PCI bus with the 3X-KZPEA-DB adapter, the SN-PBXGD-AE must be at minimum revision B05 or A03. | 8 | 4 | - | SN-PBXGD-AE |

NOTE: PowerStorm 300 and PowerStorm 350 adapters require the following:

OpenVMS V7.2-2 (minimum version required) requires OpenVMS Tima Kits located at:

http://ftp.support.compaq.com/patches/.new/openvms.shtml

Tru64 UNIX V4.0F (minimum version required) requires Patch Kit 1 with Environmental Patch

PowerStorm 300 and PowerStorm 350 adapters can be combined, provided the system maximum is not exceeded.



Options

Step 13 - Monitors - Optional

- Graphics monitors other than those listed can be used if compatible with SVGA graphics ordered with system
- A video cable, 6-foot/1.8-meter length, is included with all variants of monitors.
- Video extension cable required if monitor is located more than 1 meter from server
- Monitors will ship with, but not be integrated with systems.

| Carbon/Silver Monitors | V7550 17-inch (16-inch viewable image size) flat-faced shadow mask color monitor, two-tone (carbon/silver), 0.25mm dot pitch, VGA to 1024 x 768 @85 Hz, MPRII/TCO 99/Energy Star Compliant, Northern Hemisphere with North America power cord, VGA cable | 3R-A4002-AA |
|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| | Same as above, with Euro power cord | 3R-A4201-AA |
| | Same as above, APD, no power cord | 3R-A4202-AA |
| | Same as above, Southern Hemisphere, with Australia/New Zealand power cord | 3R-A4203-AA |
| | S7500 17-inch (16-inch viewable image size) FST multi-frequency color monitor, 2-tone (carbon/silver), 0.24-mm dot pitch, VGA to 1024 x 768 @ 85 Hz, MPRII/TCO 99/Energy Star Compliant, Northern Hemisphere with PRC power cord CCIB, VGA cable | 3R-A4800-AA |
| | P930 19-inch (18-inch viewable image size) auto-scanning color monitor, Diamondtron NF, 0.24-mm aperture grille pitch, VGA to 1600 x 1200 @85 Hz, MPRII/TCO 99/Energy Star Compliant, Northern Hemisphere with North America power cord, VGA cable, | 3R-A4215-AA |
| | Same as above, with Euro power cord | 3R-A4391-AA |
| | Same as above, Taiwan, with NA power cord | 3R-A4392-AA |
| | Same as above, Southern Hemisphere, 0.25 to 0.27 mm aperture grille pitch, with Australia/New Zealand power cord | 3R-A4393-AA |
| | S9500 19-inch (18-inch viewable image size) FST multi-frequency color monitor, 2-tone (carbon/silver), 0.22-mm dot pitch, VGA to 1280 x 1024 @85Hz, MPRII/TCO99/Energy Star Compliant, Northern Hemisphere with PRC power cord CCIB, VGA cable | 3R-A4801-AA |
| | P1130 21-inch (19.8-inch viewable image size) FD Trinitron auto-scanning color monitor, Diamondtron NF, 0.24-mm aperture grille pitch, VGA to 1792 x 1344 @85Hz, dual video input, USB Hub, MPRII/TCO 99/Energy Star Compliant, Northern Hemisphere with North America power cord, VGA cable | 3R-A4216-AA |
| | Same as above, with Euro power cord | 3R-A4396-AA |
| | Same as above, Taiwan, no power cord | 3R-A4397-AA |
| | Same as above, with PRC power cord, CCIB | 3R-A4400-AA |
| | Same as above, Southern Hemisphere, with Australia/New Zealand power cord | 3R-A4398-AA |
| Carbon/Silver Flat Panel Monitors | TFT1825, 18-inch (18-inch viewable image size) TFT flat panel monitor, 0.28mm pixel pitch, 1600 x 1200 @60Hz, multi-mode support, MPRII/TCO99/Energy Star compliant, one VGA, one DVI-I input connector. North America power cord, VGA and DVI-I cables | 3R-A4292-AA |
| | L1530, 15-inch (15-inch viewable image size) TFT flat panel monitor, 0.297 mm pixel pitch, 1024 x 768 @60 Hz, multi-mode support, MPRII/TCO99/Energy Star compliant, two video input connectors (one VGA and one DVI-I), North America power cord, VGA and DVI-I cables | 3R-A4857-AA |
| | L1530, 15-inch (15-inch viewable image size) TFT flat panel monitor, 0.297 mm pixel pitch, 1024 x 768 @60 Hz, multi-mode support, MPRII/TCO99/Energy Star compliant, two video input connectors (one VGA and one DVI-I), Euro power cord, VGA and DVI-I cables | 3R-A4858-AA |
| Video Extension Cable | 6-foot/1.8-meter video extension cable - optional | BN39C-02 |



Options

| Monitor Power Cords | North America, 120V, 75-inch | BN26J-1K |
|---------------------|----------------------------------------------------|-------------|
| | Australia, New Zealand, 2.5-meter (103541-011) | BN19H-2E |
| | Central Europe, 2.5-meter | BN19C-2E |
| | Denmark, 2.5-meter (103541-481) | BN19K-2E |
| | Egypt, India, South Africa, 2.5-meter (103541-AR1) | BN19S-2E |
| | Israel, 2.5-meter | BN18L-2E |
| | Italy, 2.5-meter (103541-461) | BN19M-2E |
| | Japan, 2.5-meter, Dentori approved | 3X-BN46F-02 |
| | Switzerland, 2.5-meter (103541-511) | BN19E-2E |
| | UK, Ireland, 2.5-meter | BN19A-2E |

Step 14 - Keyboards, Mouse, Power Cords, Documentation

Step 14a - Keyboards - Optional

- Select country-specific keyboard and mouse only if required.
- All keyboards listed may not be available in all geographies.
- Select an opal OpenVMS keyboard for use with VT5xx text terminals.

| | Opal | Carbon | |
|------------------------------|----------|----------------------|-------------|
| Keyboard/Language | OpenVMS | Tru64 UNIX and Linux | OpenVMS |
| U.S. keyboard | LK461-A2 | 3R-A4362-AA | 3X-LK463-A2 |
| Arabic keyboard | - | 3R-LKQ48-BR | - |
| Belgian keyboard | LK461-AB | 3R-LKQ48-AB | 3X-LK462-AB |
| BHCSY keyboard | - | 3R-LKQ48-AX | - |
| Canadian/English keyboard | LK461-AQ | - | 3X-LK462-AQ |
| Canadian/French keyboard | LK461-AC | 3R-LKQ48-AC | 3X-LK462-AC |
| Cyrillic keyboard (Russian) | LK461-BT | 3R-LKQ48-BT | 3X-LK462-BT |
| Czech keyboard | LK461-BV | 3R-LKQ48-BV | 3X-LK462-BV |
| Danish keyboard | LK461-AD | 3R-LKQ48-AD | 3X-LK462-AD |
| Dutch keyboard | LK461-AH | 3R-LKQ48-AH | 3X-LK462-AH |
| Finnish keyboard | LK461-AF | 3R-LKQ48-AF | 3X-LK462-AF |
| French keyboard | LK461-AP | 3R-LKQ48-AP | 3X-LK462-AP |
| German keyboard | LK461-AG | 3R-A4358-AA | 3X-LK462-AG |
| Greek keyboard | LK461-BH | 3R-LKQ48-BH | 3X-LK462-BH |
| Hebrew keyboard | LK461-AT | 3R-LKQ48-AT | 3X-LK462-AT |
| Hungarian keyboard | LK461-BQ | 3R-LKQ48-BQ | 3X-LK462-BQ |
| International keyboard | - | 3R-A4362-AA | - |
| Italian keyboard | LK461-Al | 3R-A4363-AA | 3X-LK462-AI |
| Japanese keyboard | - | 3R-LKQ48-AJ | - |
| Korean keyboard | - | 3R-LKQ48-BK | - |
| Latin-American keyboard | - | 3R-LKQ48-AR | - |
| Norwegian keyboard | LK461-AN | 3R-LKQ48-AN | 3X-LK462-AN |
| Polish keyboard | LK461-BP | 3R-LKQ48-BP | 3X-LK462-BP |
| Portuguese keyboard | LK461-AV | 3R-LKQ48-AV | 3X-LK462-AV |
| Romanian keyboard | LK461-BL | - | 3X-LK462-BL |
| Simplified Chinese keyboard | - | 3R-A4370-AA | - |
| Slovak keyboard | LK461-CZ | 3R-LKQ48-CZ | 3X-LK462-CZ |
| Spanish keyboard | LK461-AS | 3R-A4372-AA | 3X-LK462-AS |
| Swedish keyboard | LK461-AM | 3R-LKQ48-AM | 3X-LK462-AM |
| Swiss/French keyboard | LK461-AK | 3R-A4374-AA | 3X-LK462-AK |
| Swiss/German keyboard | LK461-AL | - | 3X-LK462-AL |
| Traditional Chinese keyboard | - | 3R-LKQ48-BI | - |
| Thai keyboard | - | 3R-LKQ48-CB | - |
| Turkish Q keyboard | LK461-BU | 3R-LKQ48-BU | 3X-LK462-BU |
| Turkish/F keyboard | LK461-BW | - | 3X-LK462-BW |
| UK keyboard | - | 3R-A4378-AA | - |
| Yugoslavian keyboard | LK461-BY | - | 3X-LK462-BY |



Options

| Step 14b - Mouse - Optional |
|-----------------------------|
|-----------------------------|

| Step 14c - Power Cords Tower Power Cords • Tower Power Cords • Pec | wer enclosure ordered in North America includes 120V power cord; selection of country-spe andatory for all non-North American systems. In additional power supply ordered with a system installed in tower enclosure requires add destal systems ordered in North America include two 120V power cords; selection of two | |
|-----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| Tower Power Cords • Tower Power Cords • Pec | andatory for all non-North American systems. Ch additional power supply ordered with a system installed in tower enclosure requires add | |
| Tower Power Cords ● Pec | andatory for all non-North American systems. Ch additional power supply ordered with a system installed in tower enclosure requires add | |
| | lectal systems ardered in North America include two 120V power cords, coloction of two | |
| COL | untry-specific power cords is mandatory for all non-North American systems. | |
| | rica, 120V, 75-inch | BN26J-1K |
| | New Zealand, 2.5-meter (103541-011) | BN19H-2E |
| | rope, 2.5-meter | BN19C-2E |
| Denmark, 2 | 2.5-meter (103541-481) | BN19K-2E |
| Egypt, India | a, South Africa, 2.5-meter (103541-AR1) | BN19S-2E |
| Israel, 2.5- | meter | BN18L-2E |
| ltaly, 2.5-m | neter (103541-461) | BN19M-2E |
| Japan, 2.5 | -meter | 3X-BN46F-02 |
| Switzerland | , 2.5-meter (103541-511) | BN19E-2E |
| UK, Ireland | I, 2.5-meter | BN19E-2E |
| Step 14d - Documentation | | |
| | AlphaServer ES40 System Information Kit (print and CD), Owners Guide, User Interface I Release Notes | QA-6E88A-G8 |

Step 16 - Upgrade Kit - Optional

Upgrades ES40 Model 1 with six I/O slots and support for four memory options to ES40 Model 2 with 10 I/O slots and support for eight memory options

• Third-party console devices require an EIA-232 25-pin DSUB connector VT510 video terminal; requires keyboard, H8575-x adapter, and BC16E-x cable

Console cable, male connector (adapter with EOS, ESD, 25 POS D-SUB)

Console cable, female connector (25-pin passive adapter)

3X-KFPPA-AA

VT510-xx

H8575-A

H8575-D



Options

Step 17 - Software - Required selection of media and documentation for first system on site

• Software Processor Code = E

Tru64 UNIX

- AlphaServer ES40 Tru64 UNIX systems include Unlimited User license, Server Extension license, Internet Express, and Secure Web Server
- AlphaStation ES40 Tru64 UNIX systems include preinstalled software, 2-user Base license and Open3D traditional license

| When | using | Tru64 | UNIX |
|-------|--------|-------|------|
| V5.0A | or lat | er | |

| Tru64 UNIX media and online documentation on CD-ROM | QA-6ADAA-H8 |
|----------------------------------------------------------------------------------------------|-------------|
| Tru64 UNIX full hard copy documentation | QA-6ADAA-GZ |
| StorageWorks Software Package, with licenses for Logical Storage Manager and AdvFS Utilities | QB-5RXAE-AA |
| TruCluster Server License | QL-6BRAE-AA |
| Advanced Server for Tru64 UNIX, 25 client concurrent use license | QL-5U29M-3D |
| Advanced Server for Tru64 UNIX, 50 client concurrent use license | QL-5U29M-3E |
| Advanced Server for Tru64 UNIX, 100 client concurrent use license | QL-5U29M-3F |
| Advanced Server for Tru64 UNIX, 250 client concurrent use license | QL-5U29M-3G |
| Advanced Server for Tru64 UNIX, 500 client concurrent use license | QL-5U29M-3H |
| Layered products media and documentation for Tru64 UNIX on CD-ROM | QA-054AA-H8 |
| DECnet/OSI extended function license for Tru64 UNIX | QL-MTKAE-AA |
| DECnet/OSI end-system license for Tru64 UNIX | QL-MTJAE-AA |
| Open3D for Tru64 UNIX on CD-ROM, includes graphics drivers | QA-OAFAA-H8 |

When using Tru64 UNIX V4.0F

| Tru64 UNIX media and online documentation on CD-ROM | QA-MT4AA-H8 |
|----------------------------------------------------------------------------------------------|-------------|
| Tru64 UNIX full hard copy documentation | QA-MT4AA-GZ |
| StorageWorks Software Package, with licenses for Logical Storage Manager and AdvFS Utilities | QB-5RXAE-AA |
| TruCluster Available Server License | QL-05SAE-AA |
| TruCluster Production Server License | QB-3RLAE-AA |
| Tru64 UNIX Driver for MEMORY CHANNEL license | QB-4ZCAE-AA |
| Advanced Server for Tru64 UNIX, 25 client concurrent use license | QL-5U29M-3D |
| Advanced Server for Tru64 UNIX, 50 client concurrent use license | QL-5U29M-3E |
| Advanced Server for Tru64 UNIX, 100 client concurrent use license | QL-5U29M-3F |
| Advanced Server for Tru64 UNIX, 250 client concurrent use license | QL-5U29M-3G |
| Advanced Server for Tru64 UNIX, 500 client concurrent use license | QL-5U29M-3H |
| Layered products media and documentation for Tru64 UNIX on CD-ROM | QA-054AA-H8 |
| DECnet/OSI end-system license for Tru64 UNIX | QL-MTJAE-AA |
| DECnet/OSI extended function license for Tru64 UNIX | QL-MTKAE-AA |
| Open3D for Tru64 UNIX on CD-ROM, includes graphics drivers | QA-OAFAA-H8 |
| | |



Options

OpenVMS

- AlphaServer ES40 OpenVMS systems include Base license with System Manager license and Enterprise Integration Server License Package for OpenVMS Revision V3.1
- AlphaStation ES40 OpenVMS systems include pre-installed software, Base license, Concurrent Use 1-user license, NAS 150 Client license, MMS RT license and Open3D traditional license
- Enterprise Integration Package includes licenses for TCP/IP Services for OpenVMS, DECwindows Motif for OpenVMS Alpha, DECprint Supervisor for OpenVMS Alpha Plus, DECprint Supervisor for OpenVMS Open, DECnet-Plus for OpenVMS Alpha End System, Archive/Backup System for OpenVMS Management Tools, Archive/Backup Agent for Windows NT, OpenVMS Disk Services for Windows NT, Office Server for OpenVMS, PATHWORKS 32, PATHWORKS V6 for OpenVMS – Advanced Server, and DIGITAL Office Server Client Access License
- OpenVMS Concurrent Use licenses provide the right to interactively use the operating system
 by the specified number of concurrent users on a designated OpenVMS system. OpenVMS
 Concurrent Use licenses can be moved from one system to another at user discretion and can
 be shared in a mixed OpenVMS VAX and OpenVMS Alpha cluster.
- OpenVMS Traditional Unlimited Use license is system specific and can only be used on one system at a time. It cannot be shared between systems or in an OpenVMS VAX or OpenVMS Alpha Cluster.

| Concurrent Use 1-user license | QL-MT3AA-3B |
|-------------------------------------------------------------------------------------|-------------|
| Concurrent Use 2-user license | QL-MT3AA-3C |
| Concurrent Use 4-user license | QL-MT3AA-3D |
| Concurrent Use 8-user license | QL-MT3AA-3E |
| Concurrent Use 16-user license | QL-MT3AA-3F |
| Concurrent Use 32-user license | QL-MT3AA-3G |
| Concurrent Use 64-user license | QL-MT3AA-3H |
| Concurrent Use 128-user license | QL-MT3AA-3J |
| Concurrent Use 256-user license | QL-MT3AA-3K |
| Traditional unlimited user license | QL-MT2AE-AA |
| OpenVMS V7.2-2 media and online documentation on CD-ROM | QA-MT1AR-H8 |
| OpenVMS V7.3 media and online documentation on CD-ROM | QA-MT1AT-H8 |
| OpenVMS media and documentation on CD-ROM | QA-MT1AA-H8 |
| OpenVMS full hard copy documentation | QA-001AA-GZ |
| Layered products media and documentation for OpenVMS on CD-ROM, includes Enterprise | QA-03XAA-H8 |
| Integration Server for OpenVMS media and documentation. | |
| DECnet extended function license for OpenVMS | QL-MTGAE-AA |
| DECnet end-system to extended function upgrade license for OpenVMS | QL-MTHAE-AA |
| OpenVMS Cluster license for Alpha systems | QL-MUZAE-AA |
| OpenVMS Volume Shadowing license | QL-2A1AE-AA |

Step 18 - Hardware and Software Support Services for Tru64 UNIX and OpenVMS

 Select one of the optional HP Care Pack Service Packages described below that best support the customer's operational requirements for system availability.

HP Care Pack Services

HP Care Pack Services are available for AlphaServer systems running Tru64 UNIX or OpenVMS
operating systems. HP Care Pack Services are designed for customers who require support
beyond that provided by the hardware product warranty with coverage for both Principal server
systems and SSPs (Subsequent System Packages) - that meet a full range of customer support
requirements.



Options

Program Features - Principal Server

HP Support Plus

- 13 x 5 HW/SW support
- 4-hour response on-site hardware support
- 2-hour response for software support
- License Subscription for HP O/S software and embedded L/P (i.e., EIS for OpenVMS, unlimited users, and server extensions for Tru64 UNIX
- Consolidated Software Media Update Distribution for OpenVMS or Tru64 UNIX and their layered products. (Some Layered products are not included on Consolidated Software Media Update Distribution and can be ordered separately.)

HP Support Plus 24

- 24 x 7 HW/SW support
- Named HW engineer
- 4-hour response on-site hardware support
- 2-hour response for software support
- License Subscription for HP O/S software and embedded L/P (i.e., EIS for OpenVMS, unlimited users and server extensions for Tru64 UNIX
- Consolidated Software Media Update Distribution for OpenVMS or Tru64 UNIX and their layered products. (Some Layered products are not included on Consolidated Software Media Update Distribution and can be ordered separately.)

Program Features – Additional Services

SSPs (Subsequent System Packages)

- For HP Care Pack Support Plus and Support Plus 24
- HW Support at same level as corresponding package for Principal server
- License Subscription: HP O/S (where applicable)
- Telephone support through Principal server covered by full support package

Installation

- Pre-installation review
- Unpacking of equipment
- Assemble and test
- Basic product usage info
- No software installation added

Installation & Startup HP O/S

- Pre-installation review
- Unpacking of equipment
- Assemble and test
- Basic product usage info
- Install operating systems
- Product configuration
- Print & network access
- Orientation

Options

| Model/HP Care Pack | Principal Server | Principal Server | Subsequent Systems | Subsequent Systems 3 years | |
|-----------------------------------|------------------|------------------|--------------------|-------------------------------|--|
| Services | 1 year | 3 years | 1 year | | |
| AlphaServer ES40 Model 1 Pedestal | | | | | |
| HP Support Plus | FP-F01AA-12 | FP-F01AA-36 | FP-F21AA-12 | FP-F21AA-36 | |
| HP Support Plus 24 | FP-F02AA-12 | FP-F02AA-36 | FP-F22AA-12 | FP-F22AA-36 | |
| Installation | FP-FINST-AA | FP-FINST-AA | FP-FINST-AA | FP-FINST-AA | |
| Installation & Startup | FP-FSTAR-AA | FP-FSTAR-AA | FP-FSTAR-AA | FP-FSTAR-AA | |
| AlphaServer ES40 Model 2 Pede | stal | | | | |
| HP Support Plus | FP-F01BA-12 | FP-F01BA-36 | FP-F21BA-12 | FP-F21BA-36 | |
| HP Support Plus 24 | FP-F02BA-12 | FP-F02BA-36 | FP-F22BA-12 | FP-F22BA-36 | |
| Installation | FP-FINST-BA | FP-FINST-BA | FP-FINST-BA | FP-FINST-BA | |
| Installation & Startup | FP-FSTAR-BA | FP-FSTAR-BA | FP-FSTAR-BA | FP-FSTAR-BA | |
| AlphaServer ES40 Model 1 Towe | r/Drawer | | | | |
| HP Support Plus | FP-F01CA-12 | FP-F01CA-36 | FP-F21CA-12 | FP-F21CA-36 | |
| HP Support Plus 24 | FP-F02CA-12 | FP-F02CA-36 | FP-F22CA-12 | FP-F22CA-36 | |
| Installation | FP-FINST-CA | FP-FINST-CA | FP-FINST-CA | FP-FINST-CA | |
| Installation & Startup | FP-FSTAR-CA | FP-FSTAR-CA | FP-FSTAR-CA | FP-FSTAR-CA | |
| AlphaServer ES40 Model 2 Towe | l r/Drawer | | | | |
| HP Support Plus | FP-F01DA-12 | FP-F01DA-36 | FP-F21DA-12 | FP-F21DA-36 | |
| HP Support Plus 24 | FP-F02DA-12 | FP-F02DA-36 | FP-F22DA-12 | FP-FINST-DA | |
| Installation | FP-FINST-DA | FP-FINST-DA | FP-FINST-DA | FP-FINST-DA | |
| Installation & Startup | FP-FSTAR-DA | FP-FSTAR-DA | FP-FSTAR-DA | FP-FSTAR-DA | |

NOTES:

- AlphaServer ES40 systems include three years hardware warranty with 5 x 9, on-site Next Business Day response.
- HP Care Pack Services include support for new HP branded hardware options internal to the AlphaServer enclosure plus a monitor (17-inch or less excluding flat panel models).
- External storage devices/cabinets carry their own level of warranty and should be quoted separately for uplifted warranty services.
- In addition to the HP Care Pack Services shown above, other service packages are available for separate hardware and software support. For more
 information on Hardware and Software Upfront Services and other HP service options available for AlphaServers, consult your Sales Account
 Manager, HP Services Principal, or visit http://www.compaq.com/services/ NOTE: This website is available in English only.

TechSpecs

| Tower Configuration | Dimensions (H \times W \times D) | 20 x 15.25 x 31 in (50.8 x 38.7 x 78.7 cm) | | | |
|------------------------|--------------------------------------|--------------------------------------------------------------|---------------------------------------------------|-----------------|--|
| | Shipping Dimensions | 32.2 x 24 x 40 in (82.48 x 60.2 x 101.6 cm) | | | |
| | Weight | Typical Configuration | 144.3 lb (65.6 kg) | | |
| | | Maximum Configuration | 212.8 lb (96.7 kg) | | |
| | Shipping Weight | Typical Configuration | 172 lb (78 kg) | | |
| | | Maximum Configuration | 242 lb (110 kg) | | |
| | Clearances | | Operating | Service | |
| | | Front | 29.5 in (75 cm) | 29.5 in (75 cm) | |
| | | Rear | 6 in (15 cm) | 29.5 in (75 cm) | |
| | | Left Side | None | 29.5 in (75 cm) | |
| | | Right Side | None | None | |
| Pedestal Configuration | Dimensions (H x W x D) | 30.8 x 20 x 31.75 in (78.2 x | (50.8 x 80.6 cm) | | |
| | Shipping Dimensions | 42.4 x 39.5 x 23.9 in (107.7 | | | |
| | Weight | Typical Configuration | 280 lb (127 kg) | | |
| | · · - · g · · · | Maximum Configuration | 350 lb (159 kg) | | |
| | Shipping Weight | Typical Configuration | 328 lb (149 kg) | | |
| | ····· | Maximum Configuration | 407 lb (185 kg) | | |
| | Clearances | gg | Operating | Service | |
| | O.O.O. O.O.O. | Front | 29.5 in (75 cm) | 29.5 in (75 cm) | |
| | | Rear | 6 in (15 cm) | 29.5 in (75 cm) | |
| | | Left Side | None | None | |
| | | Right Side | None | 29.5 in (75 cm) | |
| Rackmount System | Dimensions (H x W x D) | 13.87 x 17.6 x 30.1 in (35.2 (fits 14 in [8U] standard RE | | | |
| | Shipping Dimensions | 28.8 x 24 x 40 in (73.2 x 60 | 0.7 x 101.6 cm) | | |
| | Weight | When lifting: | | | |
| | | Nominal | 110 lb (50 kg) | | |
| | | Maximum | 167.2 lb (76 kg) | | |
| | | Total added to cabinet (brackets, slides, cables): | | | |
| | | Nominal | 130 lb (59 kg) | | |
| | | Maximum | 202.4 lb (92 kg) | | |
| | Shipping Weight | Nominal | 158 lb (72 kg) | | |
| | | Maximum | 233 lb (106 kg) | | |
| | Clearances | Operating | Service | | |
| | | See specific cabinet requirements | Minimum 4 ft (121.9 cm 30 in (76.3 cm) withdro | | |



TechSpecs

| Cabinet Configuration | | H9A10 M-Series | H9A15 M-Series | | | |
|-----------------------|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|-----------------------------------------------|--|--|
| | $\begin{array}{l} \textbf{Dimensions} \\ (\textbf{H} \times \textbf{W} \times \textbf{D}) \end{array}$ | 67 x 23.6 x 41.5 in (170 x 60 x 105.4 cm) | 79 x 23.6 x 41.5 in (200 x 60 x 105.4 cm) | | | |
| | Shipping Dimensions | 73 x 36 x 48 in (185.5 x 91.5 x 122 cm) | 85 x 36 x 48 in (216 x 91.5 x 122 cm) | | | |
| | Weight | Configuration dependent | Configuration depender | nt | | |
| | Shipping Weight | Nominal: 946 lb (430 kg) | kg) | | | |
| | | Maximum: 1,375 lb (625 kg) | Maximum: 1,408 lb (640 kg) | | | |
| System Unit | Environmental | | | | | |
| | Temperature | Operating (Tower, Pedestal, Rackmount) | 50° to 95° F (10° to 35° | C) | | |
| | | Non-operating | -40° to 151° F (-40° to | 66° C) | | |
| | | Storage (60 days) | -40° to 151° F (-40° to | 66° C) | | |
| | | Rate of change | 20° F/hr (11° C/hr) | | | |
| | | NOTE: Maximum operating temperature at sea level; reduce by 1.8° F (1° C) for 2,000 ft (600 m) above sea level. | | | | |
| | Humidity | Operating | 20% to 80% | | | |
| | | Non-operating | 20% to 80% | | | |
| | | Storage (60 days) | 10% to 95% | | | |
| | | Rate of change | 20% hr | | | |
| | Maximum Wet Bulb Temperature | Operating | 82° F (28° C) | | | |
| | | Storage (60 days) | 115° F (46° C) | | | |
| | Maximum Dew Point Temperature | Operating | 36° F (2° C) | | | |
| | Heat Dissipation | | Maximum | | | |
| | | Tower and Rack | 1300 W, 4,440 BTU/hr | | | |
| | | Pedestal | 2400 W. 8,196 BTU/hr | | | |
| | | H9A10/H9A15 Cabinets | 4800 W, 16,392 BTU/hr | | | |
| | Air Flow and Quality | Intake location | | | | |
| | | Exhaust location | Rear Tower, Pedestal, Ra Rear/top H9A10/H9A15 | | | |
| | | Particle size | | | | |
| | | Concentration | | | | |
| | Altitude (unpressurized) | Operating | 10,000 ft (3,048 m) | | | |
| | | Non-operating | 40,000 ft (12,192 m) | | | |
| | | NOTE: Higher altitudes are possible if maximum operating temperature is reduced Temperature); other restrictions may apply such as maximum permissible altitude for drives. | | | | |
| | Acoustics (Declared values | per ISO 9296 and ISO 7779) | | | | |
| | Acoustics | | LWAd3 B | L nAm5 dBA (bystander position) | | |
| | | Idle | 6.6 | 48 | | |
| | | Operating | 6.6 | 48 | | |



NOTE: Current values for specific configurations are available, $1\ B = 10\ dBA$.

TechSpecs

| Electrical (Power supplies are | universal, PFC, auto ranging, 10 | 0/240 VAC) | | | |
|-------------------------------------------|--------------------------------------------|-------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------|---------------|
| Nominal Voltage (VAC) | 100 | 120 | 200 to 240 | | |
| Voltage Range (VAC) (temporary condition) | 90 to 100 | 110 to 128 | 180 to 250 | | |
| Power Source Phase | Single | Single | Single | | |
| Nominal Frequency (Hz) | 50/60 | 50/60 | 50/60 | | |
| Frequency Range (Hz) | 49 to 51/59 to 61 | 49 to 51/59 to 61 | 49 to 51 | /59 to 61 | |
| Maximum Inrush Current | Tower and Rackmount | Single power cord | 11.0 A | 8.5 A | 5.0 A |
| | | Multiple power cords | 6.5 A | 5.3 A | 3.0 A |
| | | Maximum VA | 1,300 | 1,270 | 1,250 |
| | Pedestal | Each power cord | 12.0 A | 10.5 A | 6.0 A |
| | | Maximum VA | 1,960 | 1,900 | 1,880 |
| | M-Series Cabinet (configuration dependent) | Nominal voltage (VAC) | 100 | 120 | 220 to 240 |
| | | Each power cord | 24 A | 24 A | 16 A |
| Power Cords | Tower | Up to 3 (75 in (190 cm)) | IEC 320 C13 to NEMA 5- (North America) or IEC 32 C13 to country-specific | | r IEC 320 |
| | Pedestal | 2 (75 in (190 cm)) | 120V non-removable NEMA 5-15 (N. America) or 200-240V IEC 320 C13 to country-specific | | |
| | Rackmount | 3 (14 ft 10 in (52 cm)) | IEC 320 C13 to NEMA 5-15 (North America) or IEC 320 C13 to IEC 320 C14 (other countries) | | |
| | Cabinet | 2 (10 ft 10 in (30 cm)) | 120V non-removable NEMA L5-30P or 200-240V non- removable IEC 309 | | 0V non- |
| Regulatory | Agency Approvals | UL: Listed to UL1950 (3rd e | edition) | | |
| | | CSA: Certified to CAN/CSA-C22.2 No. 950-M95 | | | |
| | | TUV: EN 60950/A4: 1997 VDE 0805 GS marked | | | |
| | | FCC: Part 15.B Class A | | | |
| | | CE: EN55022, EN50082 | | | |
| | | VCCI Class II ITE | | | |
| | | BCIQ: CISPR22, CNS13438 | | | |
| | | C-Tick: CISPR22, AS/NZS 3548 | | | |
| | Reviewed to | AS/NZ 3260:1993 Australian/New Zealand Standard | | | |
| | | EN 60950/A4: 1997 European Norm | | | |
| | | IEC 950 (second edition, third amend) | | | |
| | | | | | |

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